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ABSTRACT

This volume discusses the effects of supported employment on persons with developmental and other severe disabilities, by assembling the results of research investigations conducted by the Rehabilitation Research and Training Center on Supported Employment. Papers included are: "Supported Employment in Virginia: 1980-1988" (John Kregel and others); "Supported Employment: Promises Deferred for Persons with Severe Handicaps" (John Kregel and Paul Wehman); "The Effect of Consumer Characteristics and Type of Employment Model on Individual Outcomes in Supported Employment" (John Kregel and others); "Employment Outcomes of Persons Following Traumatic Brain Injury: Preinjury, Postinjury, and Supported Employment" (Paul Wehman and others); "Supported Employment: An Alternative Model for Vocational Rehabilitation of Persons with Severe Neurologic, Psychiatric, or Physical Disabilities" (Paul Wehman and others); "Fringe Benefits Earned by Supported Employment Participants" (Michael West and others); "An Analysis of State Vocational Rehabilitation Agency Costs To Provide Supported Employment Services" (W. Grant Revell and others); "The National Supported Employment Initiative and Its Impact on Rehabilitation Counselors" (Michael Shafer); "Social Integration in the Workplace: An Analysis of the Interaction Activities of Workers with Mental Retardation and Their Co-Workers" (Wendy Parent and others); "Quality Indicators of Effective Vocational Transition Programs" (Paul Sale and others); "An Analysis of the Job Duties Performed by Supported Employment Program Managers" (Valerie Brooke and others); and "Supported Employment: Job Retention" (Michael West and Trudie Hughes). References accompany most chapters. (JDD)

SUPPORTED EMPLOYMENT FOR PERSONS WITH SEVERE DISABILITIES:

FROM RESEARCH TO PRACTICE

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SUPPORTED EMPLOYMENT FOR PERSONS WITH SEVERE DISABILITIES: FROM RESEARCH TO PRACTICE

Volume III
1990

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Preface

This is the third in a series of monographs developed by the Rehabilitation Research and Training Center on Supported Employment (RRTC) at Virginia Commonwealth University. The aim of the monographs is to assemble into one volume and disseminate the results of varied RRTC research investigations into the effects of supported employment on persons with developmental and other severe disabilities. Like the earlier volumes in this series, the current monograph addresses the economic and non-economic impact of supported employment participation on individual workers and the state and local agencies responsible for serving them. However, readers of earlier volumes will recognize subtle and not so subtle changes in the research areas currently under investigation.

Our previous work focused almost exclusively on the **efficacy of supported employment** as a service delivery alternative by documenting the success of large scale efforts to enable individuals with severe disabilities to obtain and maintain competitive employment for the first time. As supported employment has gained nationwide acceptance as a rehabilitation alternative, our research efforts are now directed toward improving the **quality of supported employment services** by identifying obstacles to effective implementation and examining the differential effects of various types of supported employment services on individuals with diverse characteristics and backgrounds.

Our previous research focused almost exclusively on individuals with mental retardation served in the individual placement model of supported employment. As supported employment has expanded, our research efforts have as well - the current monograph contains investigations embracing individuals with traumatic brain injuries, long-term mental illness, cerebral palsy and other disabilities. Likewise, the monograph includes our first empirical examinations of the relative efficacy of group employment options such as work crews and enclaves in industry. We have also begun to take a closer look at key characteristics of the jobs held by supported employment participants. Recent studies reported in the monograph focus on the level of integration achieved by supported employment participants and the fringe

benefits received by workers. We have also begun to expand our attempt to investigate the roles of various professionals in the supported employment implementation process by examining the attitudes and activities of rehabilitation counselors and supported employment program managers.

Now more than at any other time we are indebted to a great many professionals and consumers whose successes and frustrations are chronicled in these manuscripts. Our research program is shaped by the advice and guidance we receive from a variety of sources. Dr. Richard Melia, our project officer within the National Institute of Disability and Rehabilitation Research, and Fred Isbister of the federal Rehabilitation Services Administration have encouraged our research program and helped to focus many of our investigations on significant national issues. We also owe much to the state and local leaders in the supported employment initiative who share with us their creative solutions to seemingly insurmountable problems and our academic colleagues around the country who critique our work and share with us the results of their own investigations. We are particularly indebted to the over 500 employment specialists who have submitted data to the RRTC longitudinal data base. Their willingness to share the results of their efforts on behalf of the consumers with severe disabilities on their own caseloads has been a tremendous benefit to other programs just starting supported employment activities.

While it is impossible to adequately thank everyone who has contributed to the developed of our recent efforts, there are several individuals in our own state who have assisted us time and again and without whose support we would be unable to complete many of our research activities. In particular, Mark Hill, Director of the Office of Supported Employment for the Virginia Department of Mental Health, Mental Retardation, and Substance Abuse Services, who conceptualized much of our current research program, and George Pugh, Director of the Office of Supported Employment and Facility Services at the Virginia Department of Rehabilitative Services, have been instrumental to the completion of our work. A special thanks is also extended to the five Regional Consultants in the Virginia supported employment network, Susan O'Mara, Connie Britt, David Ruth, Gail Markwood, and Harriet Yaffe.

We call upon them often to aid us in our work and they always assist us with their time and expertise.

Within our own Center, we would like to thank our RRTC colleagues in the Training Division and the demonstration employment programs who remind us regularly that there is more to research than p values and Beta weights and who identify the timely and socially relevant issues to be addressed by our research program. Within the RRTC Research Division, our deepest appreciation is extended to David Banks, Helen Metzler, Sue Hicks, Nancy Savold, Darlene Unger, Tracy Canter, Debra Edwards and Elizabeth Nugent. They do all the hard work - collecting and entering data, writing the programs, answering questions, proofing manuscripts, developing tables - and they do it with tremendous skill and dedication. We are extremely fortunate to have each and every one of them as colleagues.

Finally, we deeply appreciate the work of the RRTC staff who participated in the final preparation of the monograph. Thanks go to Jan Smith, our Research Administrator, who makes our Center work, Brenda Robinson and Jeanne Dalton for their word processing and technical skills, and especially Patricia Baker for her work in formatting the manuscripts in the monograph.

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Supported Employment in Virginia: 1980 - 1988

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Within the past five years there has been an enormous amount of attention focused upon supported employment as an outcome for adults with severe disabilities who have been historically unemployed or underemployed (Wehman, 1988). Supported employment initiatives from the federal government as well as federal regulations on supported employment have called upon professionals to emphasize services to people with the most severe disabilities (OSERS, 1984; Federal Register, 1987). Subsequently, major five-year grant awards were made in 1985 and 1986 by the Office of Special Education and Rehabilitative Services to 27 states. The purpose of these awards was to change, modify, or convert the existing adult service systems of segregated day programs for persons with developmental disabilities to industry based paid employment. A major focus of this effort was to involve people with severe disabilities who have historically been considered unemployable in the nation's labor force.

The systems change demonstration strategy was a bold one. This strategy called upon vocational rehabilitation, developmental disabilities, and independent day programs such as the thousands of rehabilitation facilities to rethink their way of delivering vocational services. Major elements of supported employment which were stressed in the awarding of the systems change projects were a) pay for real work, b) integration with nonhandicapped workers, and c) an emphasis on placing people with truly severe disabilities (Bellamy, Rhodes, Mank, & Albin, 1988). These elements focused on the fact that many persons were in segregated day programs earning little or no money. Yet research has shown that they could work in integrated employment programs using a supported employment model (Kiernan & Stark, 1986; Major & Baffuto, 1989; Rusch, 1986; Vogelsberg & Richard, 1988; Wehman, Hill, Hill, Brooke, Pendleton, & Britt, 1985).

The purpose of this chapter is to empirically examine supported employment implementation in Virginia in order to evaluate the success of this program. Specifically, we are interested in knowing the answers to the following questions:

- Who is participating in supported employment programs?
- What is the degree of severity, (i.e., functioning capabilities), of those participating in supported employment?

- What impact is supported employment having on the state vocational rehabilitation program?
- How many hours per week are supported employment participants working?
- What effect is supported employment having on government benefits received by participants?
- What type of supported employment models are being used?
- What kinds of wages and fringe benefits are people receiving?
- What types of employment positions are people taking?
- What is the nature of target employee job retention?

In order to answer these questions, an in-depth analysis of the quarterly data submitted by local service providers to the VCU Rehabilitation Research and Training Center was undertaken. This chapter reports the major outcome measures which have been reported. However, before describing the data management system and program results, it will be helpful to briefly review the historical basis under which Virginia built supported employment into the state system. Hence, what follows is a description of supported employment development in Virginia and a presentation of the outcome data associated with this implementation.

Supported Employment in Virginia: A Brief Historical Review

Efforts to redirect center based day support and work oriented services for persons who are mentally retarded toward supports in the competitive labor market formally began in Virginia in 1978. The Department of Rehabilitative Services, the state's general vocational rehabilitation agency, granted Virginia Commonwealth University Innovation and Expansion (I&E) funds to research and demonstrate the feasibility of placing and maintaining in competitive employment persons traditionally served in work activity and sheltered work programs. Project Employability operated in Richmond, Virginia through the I&E grant for three years and provided the foundation for the job placement, job site training, and ongoing follow-along service model, now called the supported competitive employment option. Project Employability from 1978 through 1981 also focused on the importance and viability of full participation of the

state vocational rehabilitation system and the local VR counselor in generating and supporting non-segregated employment opportunities for persons with severe disabilities (Wehman & Hill, 1979; Wehman & Hill, 1980).

In 1981, Virginia Commonwealth University received a three-year Special Projects grant from the federal Rehabilitation Services Administration to replicate in other communities in Virginia the services demonstrated through Project Employability in Richmond. Replication took place in Norfolk in cooperation with the Eggleston Center, a private non-profit sheltered workshop, and in Virginia Beach through the city's mental retardation adult services program. In addition to the replication sites coordinated through VCU, localities such as the City of Alexandria and the County of Fairfax/Falls Church in Northern Virginia initiated efforts similar to Project Employability during the 1981-1984 time period. Facility grant funds from the Department of Rehabilitative Services, CETA manpower services awards, and redirection of state and local day support services funds supported these local efforts. By 1984, persons with severe disabilities were being supported in competitive employment in the five communities previously referenced plus Roanoke and Marion in Southwest Virginia (Revell, Wehman, & Arnold, 1984).

The progress achieved in Virginia through 1984 relied heavily on federal and state discretionary grants, through short-term manpower funding and through local efforts to pool scare service funds not specifically targeted for supporting persons with disabilities in the competitive labor market. It became critically important to move from grant funding to an interagency funding system based on the service needs of specific individuals. In Virginia, the state Department of Mental Health, Mental Retardation and Substance Abuse Services is designated as the state authority for alcoholism, drug abuse, mental health, and mental retardation services. The delivery of these services is administered at the local level through a statewide system of approximately 40 Community Service Boards (CSBs). Initiating in 1984 a fee based approach to funding both time limited employment services through the vocational rehabilitation system and ongoing support service funding through the CSB system required state level interagency agreement to the concept of shared funding followed by negotiations at the

local level to insure services through specific providers for individual clients (Hill et al., 1987).

The fee based participation by the Department of Rehabilitative Services (DRS) in a supported employment service program began in 1984 with the approval of VCU as a provider of services for which the VR counselor could give authorization. The actual shared funding arrangement began in 1985 with the approval by DRS of five provider agencies which utilized both time limited VR funds and long-term support funds provided through individual Community Service Boards. As of the end of 1988, this provider system had expanded to 45 supported employment service agencies with fee for service agreements with DRS and commitments for long-term support funding from Community Service Boards. Approximately 15 of these providers are private non-profit sheltered workshops; approximately 19 are operated by CSBs; and the remainder are specialized non-profit or publicly operated programs involved in supported employment. In addition to the 45 fee-based agencies, seven agencies are developing supported employment programs through start-up grants and will be entering into fee-for-service agreements with DRS early in 1989.

The impact of this growth in service capacity on the vocational system in Virginia has been significant. From July 1, 1986 through June 30, 1987, 210 state VR clients received time-limited services through the supported employment program; from July 1, 1987 through June 30, 1988, 492 VR clients received these services. Growth in sponsorship of clients in supported employment by the Department of Rehabilitative Services has paralleled participation by the Community Service Board system. As of the end of 1988, approximately 80% of the Boards are actively engaged in funding or directly providing ongoing support services in supported employment. Through state appropriated funds, DRS initiated in the fall of 1988 a program to serve persons with physical disabilities in need of supported employment services who are not eligible for services through the Community Service Board system.

In September, 1985 Virginia received one of the original 10 state change grants awarded by the federal Office of Special Education and Rehabilitative Services to develop a state system of supported employment over a five-year period. Virginia's

state system has expanded from what began in 1978 as a demonstration effort to become a truly statewide initiative focused on changing the predominant nature of day and work services for persons with severe disabilities to community integrated employment. The Virginia Supported Employment Information System discussed in this chapter was piloted for one year with 12 start-up grant recipients funded through the state change grant in September, 1986. Effective October 1, 1987, participation in the Information System became mandatory for provider agencies receiving fees from DRS for clients in supported employment service programs. Data submission continues during the provision of ongoing support services after the termination of VR funded time limited services.

Virginia Supported Employment Information System

A comprehensive management information system has been developed to monitor the employment outcomes of target employees participating in the Virginia supported employment initiative and to serve as a management and program evaluation tool. First developed as a research data base to evaluate the results of demonstration programs operated by Virginia Commonwealth University (Wehman & Kregel, in press), the Virginia Supported Employment Information System (VSEIS) has expanded to track the progress of the large number of local community-based employment programs begun between 1985-88 as a result of the state's supported employment initiative.

As noted earlier, the present system represents a cooperative effort of the Department of Rehabilitative Services (DRS), the Office of Supported Employment in the Department of Mental Health, Mental Retardation# and Substance Abuse Services (DMHMRSAS), the VCU-RRTC, and 45 local programs vendored by DRS to provide supported employment services. The Department of Rehabilitative Services provides administrative leadership in the design and implementation of the system. Vendor agreements with local service providers require the submission of data to the system as a condition for receiving reimbursement for services. The VCU-RRTC, through a contract with DRS, is responsible for system maintenance, data analysis, and the preparation and dissemination of monthly and quarterly reports. Regional consultants from the Office for Supported Employment serve as liaisons between local providers and

the RRTC, training local providers in the use of the system, assisting in the collection of data, and interpreting technical reports for local agencies and employment specialists.

Purposes of the VSEIS

The VSEIS has been designed to achieve several distinct purposes. At the state level, aggregate information is used by DRS and DMHMRSAS to document the scope and effectiveness of supported employment, communicate the results of the supported employment initiative to state agencies and legislators, provide an empirical basis for policy formulation and program management, and detect trends and emerging issues to be addressed as the supported employment initiative evolves over time.

At the local program level, the system allows program administrators to track the growth and progress of their program on a quarter to quarter basis and to compare the outcomes of their efforts to state and regional averages. Specialized reports, such as the Monthly Intervention Report, are designed as management tools that allow administrators to monitor specific aspects of programs. The Regional Consultants from the Office of Supported Employment make extensive use of the system when providing feedback to local agencies and designing technical assistance activities.

Since extensive data is continuously collected on each target employee, as opposed to aggregated program data, the VSEIS is also used to evaluate the effect of supported employment participation on individual target employees. The system is sensitive to subtle changes in an individual's employment situation. Each target employee can be monitored on a monthly and quarterly basis to guarantee that the individual maximally benefits from the services received from the supported employment program.

Overview of the Data Management Process

The VSEIS consists of over 200 data elements, organized into nine data collection forms. The system provides detailed information on target employee demographic and functional characteristics, consumer assessment information, the results of job analyses, comprehensive data on the type of job performed by the employee, the amount and type of services provided by the supported employment program, supervisors' evaluations of the target employees' work performance, and

complete information regarding employment retention and reasons for job separation. Some data elements are collected one time only, others are collected on regular three or six month intervals, and still others are collected on a continuous, daily basis.

Regional Consultants train local employment specialists in the use of the system. Individual employment specialists are responsible for the completion of all data forms for each employee on their caseloads. The data collection forms have been designed to serve as clinical tools for the employment specialists. For example, the consumer assessment, job analysis, supervisor evaluation, and other forms are designed to directly assist in the job placement, training, and follow-along process.

Data forms are submitted on a prescribed schedule to the RRTC. The schedule for data completion is based on a consumer's date of placement rather than a specific calendar month. This enables data collection to be dispersed over a lengthy period of time instead of requiring extensive data collection at the end of each fiscal quarter. Instead of forcing employment specialists to collect and sort large amounts of data several times a year, data collection becomes a component of the employment specialists' daily routine.

Once data is received by the RRTC, a data management specialist reviews each form for completeness, accuracy, and consistency with previously submitted data. The data management specialist contacts local programs to clarify and obtain missing data, then codes each form for data entry and analysis.

Summary reports are returned to state agencies and local programs on a quarterly and monthly basis. All VSEIS participants receive aggregated statewide reports that contain both numerical tables and graphic depictions of data. Regional consultants receive both statewide and regional aggregate reports to allow the comparison of local programs within their specific region. Each of the 45 local providers receive a quarterly report that details the outcomes of their own agency. All quarterly reports contain complete information on the immediate quarter, as well as cumulative information, to allow all participants to monitor the results and growth of an individual program over time.

Each individual program also receives a report each quarter that summarizes the key employment outcomes for each target employee currently receiving services. This report lists type of job, wages earned, hours worked per week, changes in employment or benefit status, hours of service provided, and other key variables for each target employee. Another feature of the reporting system is the monthly intervention report. Each provider receives an individual report each month on each employment specialist and each target employee. The report details the type of intervention provided, the amount (number of hours) of intervention delivered to each employee by each employment specialist, and the days on which intervention was provided. The report is intended to be a management tool for program administrators that enables them to review the activities of employment specialists and monitor the scope and quality of services provided to each individual target employee.

Impact of Supported Employment

As was discussed previously, supported employment in Virginia was initiated in the late 1970s through demonstration programs operated by Virginia Commonwealth University. Between 1978 and 1985, approximately 250 individuals with mental retardation were placed into competitive employment and the results of these demonstration activities have been regularly reported (Wehman, Hill, Goodall, Cleveland, Brooke, & Pentecost, 1982; Wehman, Hill, Hill, Brooke, Pendleton, & Britt, 1985; Wehman & Kregel, in press). In the early 1980s a number of different community agencies across the state initiated supported employment programs of their own. In 1985 a dramatic expansion of Virginia's supported employment initiative occurred as a result of cooperative funding and administrative leadership provided by DRS and the DMHMRSAS Office of Supported Employment. By 1988, local agencies operated supported employment programs in all parts of the state.

This section will first chronicle previous research that studied the impact of supported employment on target workers, employers, and service providers. Second, information will be presented that summarizes the current status of supported employment in the state. Third, ongoing efforts to investigate major implementation

issues such as employment retention, reasons for separation, and the amount and type of services provided by employment specialists will be discussed.

Previous Research on Supported Employment in Virginia

The VCU-RRTC has engaged in an ongoing research effort to document the monetary and non-monetary outcomes associated with participation in supported employment. In addition to the general outcome studies of all supported employment participants cited above, specialized analyses have been completed that focused on the impact of supported employment on specific groups of individuals, such as persons with severe mental retardation (Wehman, Hill, Wood, & Parent, 1987), transition-aged individuals (Wehman, Parent, Wood, Michaud, Ford, Miller, Marchant, & Walker, in press), and persons with traumatic brain injury (Wehman, Kreutzer, Wood, Stonnington, Sherron, Diambra, Fry, & Groah, 1988).

Numerous other studies have examined more specific issues central to the success of supported employment programs. The relative success of individuals with moderate and severe mental retardation, as opposed to mild mental retardation was investigated through a study of demographic and functional characteristics that correlated with long-term employment retention (Hill, Hill, Wehman, Banks, Pendleton, & Britt, 1985). The satisfaction of employers has been studied through an employer attitude survey (Shafer, Hill, Seyfarth, & Wehman, 1987) and an analysis of supervisor's evaluations of the work performance of target employees (Shafer, Kregel, Banks, & Hill, 1988). Other research has included an investigation of the effects of supported employment on target employees' quality of life (Inge, Banks, Wehman, Hill, & Shafer, 1988) and an examination of the attitudes of target employees' coworkers (Shafer, Rice, Metzler, & Haring, in press). Finally, a series of investigations have examined the economic benefits and costs of supported employment from the perspectives of the target employees, taxpayers, and society at large (Hill, Banks, Handrich, Wehman, Hill, & Shafer, 1987; Hill, Wehman, Kregel, Banks, & Metzler, 1987; Wehman, Kregel, Banks, Hill, & Moon, 1987).

Current Status of Supported Employment

Between 1978-88, Virginia's supported employment program had grown from a single university-based demonstration program to a statewide system that had served 944 individuals. Early placement efforts focused on individuals with mental retardation. As of September 30, 1988, target employees with mental retardation accounted for 83.1% of all persons participating in supported employment. Over 40% of all individuals were reported to have a secondary disability, such as cerebral palsy, convulsive disorders, or hearing, language, or visual impairments. The primary disability of all individuals placed into supported employment is delineated in Table 1.

Table 1

Primary Disability of Target Employees
(N = 944)

Primary Disability	Percentage of All Target Employees
Mental Retardation	83.1
Long-Term Mental Illness	8.8
Traumatic Brain Injury	2.3
Other Physical Disabilities	1.5
Learning Disability	0.8
Other Neurological Disabilities	0.7
Cerebral Palsy	0.6
Hearing Impairment	0.5
Visual Impairment	0.5
Autism	0.4
Convulsive Disorder	0.3
Other	0.3

While the overwhelming number of target employees participating in supported employment remain individuals with mental retardation, since 1987 a trend toward placing individuals with other primary disabilities has definitely occurred. In 1988, for example, approximately 20% of all new placements have been individuals with long-term mental illness, and approximately 10% have been individuals with traumatic brain injury. In view of recent policy statements and financial appropriations by various state agencies, it is likely that in the future Virginia's supported employment initiative will serve individuals with a variety of different disabilities.

Another trend that has emerged in 1987-88 is the increasing number of individuals with mild mental retardation who have been placed into competitive employment. As indicated in Table 2, in 1988 individuals with mild mental retardation accounted for 43% of all persons with mental retardation, while persons with moderate mental retardation represented 38.2% of the persons served. In contrast, 1987 data (Wehman & Kregel, in press) indicated that 51% of all persons served were individuals with moderate mental retardation, while only 33% of all individuals were diagnosed as individuals with mild mental retardation. The data in Table 2 represent all individuals in the VSEIS with mental retardation as an identified primary or secondary disability.

Table 2

Diagnosed Functioning Level of Employees Labeled Mentally Retarded

Functioning Level	Percentage
Borderline	8.6
Mild	43.0
Moderate	38.2
Severe	9.6
Profound	0.6

Type of Employment Program Since its inception in 1978, supported employment providers in Virginia have been philosophically committed to the use of the individual placement, or supported work model of competitive employment (Wehman & Kregel, 1985). The prevailing belief is that the individual placement model: 1) allows the target employee maximum choice in selecting a job that meets individual preferences; 2) offers the greatest opportunity for target employees to be optimally integrated in the workplace; and 3) allows the individual to earn competitive wages. While in recent years there has been a trend toward developing group employment options (e.g. enclaves, work crews) to accommodate individuals unable to succeed in an individual placement, the individual placement approach remains the dominant model in use in the state. In 1988, 83.9% of all target employees were served in the individual placement model. Table 3 describes the percentage of all target employees working in each of the major supported employment models in the state.

Table 3
Percentage of Target Employees Working in
Major Employment Models

Type of Employment Programs	Percentage of Target Employees
Individual Placement	83.9
Enclave	8.3
Work Crew	6.6
Entrepreneurial	1.2

Wages Earned and Hours Worked Per Week The average hourly wage for all positions held by target employees in Virginia from 1978 - 1988 has been $3.64 per hour. This figure has remained remarkably consistent over time. For example, Wehman and Kregel (in press), relying on 1986 data, reported an average hourly wage of $3.56 per hour. It should be noted that some individual placement were made prior to 1981, when the minimum wage was less than the current level of $3.35 per hour, a factor that somewhat deflates the overall average.

The mean and range of hourly wages for all employment models is listed in Table 4. Wages range from an average of $1.57 per individual in the entrepreneurial model to $3.79 in the individual placement model. Wages vary considerably within specific models. For example, wages for all group employment options range from less than $1.00 per hour to $5.00 per hour in the enclave model. This variability indicates that sophisticated job development in group employment options can allow some target employees to earn significant wages.

The cumulative wages earned by all target employees since the initiation of supported employment in 1978 has been $6,339,090. Presently, the total earned by all individuals working each quarter averages about $750,000.

Target employees work an average of 28 hours per week. Approximately half of all individuals (49%) worked 30-40 hours per week, with 42% working 20-30 hours

Table 4
Hourly Wages for Target Employees in
Various Employment Models

Employment Programs	Average Hourly Wage	Range
Individual Placement	$3.79	$2.65 - $13.80
Enclave	$2.64	$0.77 - $5.00
Work Crew	$2.63	$0.58 - $4.91
Entrepreneurial	$1.57	$0.50 - $3.35

per week. A small number of individuals (8.3%) worked less than 10 hours per week. This figure should be viewed cautiously, since some individuals held two or more jobs simultaneously that totaled more than 20 hours per week in combination. Table 5 provides a categorical breakdown of the hours worked per week across all employment models.

Table 5

Hours Worked per Week by Target Employees in Various Supported Employment Models
(N = 678)

Hours per Week	Individual (N = 515)	Enclave (N = 84)	Work Crew (N = 67)	Entrepreneurial (N = 12)
Less than 20	9.3	2.4	8.9	0.0
20 to 30	40.4	39.3	50.8	83.3
30 to 40	49.7	58.3	40.3	0.0
More than 40	0.6	0.0	0.0	16.7

Note: Percentages contained in each column represent the percentage of individuals working in that particular employment model. Data represents all positions held by target employees who worked at any time during FY 88.

Level of Integration An important concern for Virginia supported employment providers is the level of vocational and social integration in the workplace experienced by target employees. In addition to the opportunity to earn significant wages, integration is the primary motivating principle underlying the supported employment movement (Wehman & Moon, 1986). The VSEIS requires employment specialists to gauge the level of integration in the workplace for each target employee on a five point scale that ranges from complete segregation to frequent work related interaction. Table 6 summarizes the level of integration for all target employees.

Table 6

Level of Integration with Non-Handicapped Co-Workers in the Workplace

Level of Integration	Percentage of Total Placements
Frequent work related interaction	42.9
Moderate level of work related interaction	41.1
No work related interaction	9.9
General physical separation	4.8
Complete segregation	1.4

From the data contained in Table 6, it appears that the overwhelming majority of target employees are experiencing a significant amount of integration through their participation in the supported employment program. A moderate or frequent level of work related interaction is reported for 84% of all individuals. While these results are quite encouraging, relatively little is known about the quality of this integration. In-depth investigations are presently underway to more specifically examine the nature and quality of integration experienced by target employees in various supported employment models.

Fringe Benefits Received by Target Employees An important consideration in the identification of appropriate jobs for persons with severe disabilities is the availability of fringe benefits. Health insurance, paid vacations, sick leave, and other fringe benefits not only have the effect of enhancing the quality or value of a position, but also provide a significant economic benefit, particularly to individuals who experience a decrease in disability benefits due to their participation in supported employment. A summary of all fringe benefits received by target employees is contained in Table 7.

Table 7

Fringe Benefits Received by Target Employees

Fringe Benefits	Percentage of Total Positions
Sick Leave	33.9
Paid Vacation	45.1
Medical Insurance	33.6
Dental Insurance	7.9
Employee Discount	16.3
Free/Reduced Meals	30.1
Other Benefits	13.7
No Fringe Benefits	32.7

As is evident from Table 7, between one-third and one-half of all individuals receive the key fringe benefits of sick leave, paid vacations, and medical insurance. No fringe benefits were reported for 30.1% of all positions. The percentage of positions not providing any fringe benefits has decreased dramatically over time. As recently as 1987, nearly half of all positions reported no fringe benefits. This trend can be directly

attributed to the job development skills of employment specialists in the state. While entry level service occupations, the primary types of positions held by target employees, frequently do not provide fringe benefits, employment specialists have been dedicated to identifying the best possible job for each target employee.

Major Implementation Issues

An emerging issue of considerable significance to the Virginia supported employment initiative is employment retention. The ability of target employees to retain employment for an extended period of time has tremendous implications for employees, their families, and program managers. For individuals who have little or no previous experience in community-based employment settings, employment retention may be conceptualized a number of different ways. Table 8 illustrates one approach to analyzing the degree to which target employees retain their jobs.

Table 8

Employment Status of Target Employees at Various Points in Time after Initial Placement

	3 months (N = 842)	6 months (N = 727)	9 months (N = 642)	12 months (N = 562)	18 months (N = 398)	24 months (N = 293)
Still employed in first job	78.6%	66.3%	57.0%	50.4%	37.8%	33.2%
Employed in subsequent job(s)	4.7%	8.0%	11.0%	16.3%	19.6%	18.3%
No longer employed	16.7%	25.7%	32.0%	33.3%	42.8%	48.5%

Note: The declining N's over time reflect the fact that a large number of individuals have been placed into employment quite recently and have therefore not yet had the opportunity to work an entire 24 months.

Table 8 describes the employment status of all employees in the VSEIS at several points in time after their initial placement. The number of individuals represented at each time period (3 months, 6 months, etc.) declines over time since many individuals have been only recently placed into employment and have not yet had the opportunity to work the entire 24 month period represented in the table. Three categories of employment retention are identified for each of the time periods, including: 1) the percentage of individuals remaining employed in their original job, 2) the percentage of individuals no longer employed in their original jobs but employed in

subsequent jobs, and 3) the percentage of individuals no longer employed in any supported employment option.

Several trends are readily apparent from an examination of the data contained in Table 8. First, the number of individuals who remain employed in their initial job declines significantly over time. While approximately two-thirds (66.3%) of all target employees remain in their initial jobs at six months after placement, this percentage decreases to approximately one-half (50.4%) after 12 months and one-third (33.2%) after 24 months.

Second, the fact that a target employee is no longer employed in their original position does not mean that the individual has failed in a supported employment position and is no longer working at all. Many individuals obtain a different job or succeed in an alternative supported employment model. As the table indicates, from 12 months to 24 months after initial placement, between 15% and 20% of all individuals are employed in subsequent employment situations. Placement into supported employment appears to indicate a relatively fluid situation in which target employees frequently change jobs. These job changes may represent individuals who were unsuccessful in their original placement and subsequently placed into a different job, individuals who resigned their position to obtain a better employment situation, or individuals who moved from one type of supported employment alternative to another.

Third, it is apparent that a year or two after initial placement, a sizable number of target employees are no longer employed in any supported employment alternative. This information can be interpreted in two different ways. From one perspective, the fact that three-quarters (74.3%) of target employees are employed six months after placement and two-thirds (66.7%) are employed after one year is admirable, given that the vast majority of the target employees have had no community-based employment experience prior to their placement in supported employment. At the same time, however, the fact that almost half (48.5%) are no longer employed 24 months after placement clearly indicates that a large number of individuals placed into supported employment will not remain employed indefinitely.

The information related to employment retention discussed above has significant implications for Virginia's supported employment initiative. Based on these results, supported employment placement is being viewed as a very fluid, dynamic process. Policy-makers and program managers realize that just as most workers in the general population experience frequent changes in their jobs and careers, it is quite likely that a target employee's job status will change from time to time. Rehabilitation counselors are increasingly beginning to reopen an individual's case to allow a local program to replace an individual into a second, third, or even fourth employment situation. Employment specialists providing ongoing support are continuously attempting to assess the target employee's satisfaction with his/her employment situation. Job changes are not being viewed as a negative event. As will be discussed shortly, frequently individuals resign their jobs in order to obtain a different job which they prefer because of better job duties, wages, or working conditions. In other situations, it is clear that if an individual is not successful in their initial employment situation, it is entirely possible that the target employee can be quite successful in another situation.

Virginia has unequivocally demonstrated that a large number of individuals with no previous work experience can successfully enter competitive employment. However, it is also clear that not all individuals are presently able to maintain employment indefinitely. Program managers, target employees, and their families are reacting to the fact that a sizable number of target employees will not be employed in any supported employment alternative at some time after placement. Employment specialists throughout the state are working diligently to provide the type and amount of ongoing support services required to maximize each target employee's job retention. Program managers recognize the need to develop policies and options to provide alternatives for individuals unable to succeed in supported employment. This may include the development of additional supported employment options within a given program to provide a needed service for individuals unsuccessful in presently available alternatives, or procedures to insure that a target employee who loses his or her job will not be forced to wait an extensive amount of time before again receiving services.

Target employees and their families are also weighing this information carefully when deciding whether or not to participate in supported employment programs operated by the local agency in their community. Employment specialists must openly and accurately explain the alternatives available should the individual be unsuccessful in supported employment. Target employees and their families are also becoming aware of the potential consequences of unsuccessful supported employment placements. In some communities in the state, for example, individuals who remain employed for over 60 days, then lose their job, are returned to a waiting list for services. These individuals may face a wait of a year or more before they are again eligible for services. Individuals and their families are considering this situation, as well as other potential risks and benefits of supported employment placement, when making the decision to participate in supported employment.

Separation from Employment

Target employees working in supported employment situations may be separated from their jobs for any of a number of reasons. Resignations, lay-offs, terminations, or leaves of absence for medical or other reasons account for all separations of individuals represented in the VSEIS. The relative percentages of these types of separations are delineated in Table 9.

Table 9

Type of Separation from Employment
(N = 600)

Type of Separation	Percentage
Resigned	43.3
Terminated	38.0
Laid Off	16.8
Leave of Absence	1.9

The most frequently occurring type of separation from employment is due to employee resignation (43.3%). Target employees may resign because they simply no longer wish to work in a particular job. Frequently, resignations occur because the individual has located a better job. In a few instances, the resignation is initiated by the individual's parents or guardians. Finally, a resignation may be the result of a

mutual agreement between the target employee, the employment specialist, and the employer that indicates that the current placement may not be appropriate or feasible for the individual.

The second most frequently cited type of separation is termination from employment initiated by the employer (38.0%). Previous research on supported employment programs in Virginia (Hill, Wehman, Hill, & Goodall, 1986) has indicated that individuals with mild mental retardation are significantly more likely to be terminated from employment than individuals with moderate or severe mental retardation. Individuals with moderate or severe mental retardation seem to be more likely to be forced to resign from supported employment positions due to external factors outside their control such as transportation problems or resignations initiated by their parents or guardians.

A significant number of individuals (16.8%) were separated from employment due to lay-offs. This result has significant implications for the job development activities of employment specialists. While employment specialists in the state make every effort to identify positions for target employees that are not seasonal in nature or susceptible to changes in the economic situation, it appears inevitable that in some instances business closings or workforce cutbacks will leave individuals temporarily unemployed. The effects of lay-off on disability benefits and service interruptions must be carefully considered by employment specialists.

Reasons for Separation

A major issue within the national supported employment movement that has received considerable study concerns the reasons why target employees are separated from employment. Previous analyses of the reasons for separation from employment in Virginia has been provided by Hill, Hill, Banks, Wehman, and Goodall (1986) and Wehman, Hill, Goodall, Cleveland, Brooke, and Pentecost (1982) and the issue has been extensively studied by other researchers (Brickey, Browning, & Campbell, 1982; Ford, Dineen, & Hall, 1984; Greenspan & Shoultz, 1981; Schalock & Harper, 1978). In the VSEIS, whenever an individual is separated form employment, the employment specialist is asked to identify the main factor contributing to the separation. Currently,

a large variety of different causes of separation are frequently identified, generally consistent with the results of previous studies. A complete list of reasons for separation for all target employees is contained in Table 10.

The most frequently cited reason for separation is the economic situation (13.8%), a factor very likely to contribute to lay-offs of target employees. Another major reason as reported by employment specialists is that clients no longer wish to work (11.1%). While this is unfortunate, it must be viewed in the context of a large number of individuals who are entering community-based employment settings for the first time. For individuals with no previous work experience, it should perhaps be anticipated that

Table 10

Reason for Separation from Employment

Reason for Separation	Percentage
Economic situation	13.8
Does not want to work	11.1
Resigned to take better job	10.3
Poor work attitude	6.5
Poor attendance/tardiness	5.7
Employer uncomfortable with situation	5.2
Slow work	4.8
Poor job match	4.8
Parent/guardian initiated resignation	4.7
Low quality work	4.3
Insubordinate behavior	4.3
Medical/health problem	4.0
Aberrant behavior	3.3
Continual prompting required	3.2
Seasonal layoff	3.0
Transportation problem	2.0
Parental interference	0.8
SSI/SSDI interference	0.2
Other reasons	8.0

a small number of individuals should express dissatisfaction when facing the challenges of competitive employment for the first time.

A significant number of individuals (10.3%) resigned their positions in order to take a better job, reinforcing the concept of movement and advancement in competitive employment discussed above. Other reasons for separation frequently cited include a number of factors related to vocational competence, including slow work, low quality work, and the need for continual prompting, and a large number of factors related to social competence and ability to interact with supervisors and coworkers, such as poor social skills, employer discomfort, insubordinate behavior, and aberrant behavior.

It is interesting to note that a number of factors hypothesized to be very important in the long-term job maintenance of target employees are rarely cited as primary reasons for job separation. Parental interference and interference with disability benefits such as SSI and SSDI were both reported less than 1% of the time as the reason for separation. Transportation problems were cited in only 2% of all cases.

Amount and Type of Intervention Time Provided to Target Employees

The overriding philosophy of the Virginia supported employment initiative is to evaluate its success based upon the key employment outcomes achieved by the individuals participating in the program. At the same time, however, program managers and employment specialists are constantly striving to make local community-based employment programs as efficient as possible. To achieve this purpose, the Virginia supported employment initiative has completed a series of investigations of the amount and type of services provided to individuals placed into competitive employment.

The unit of analysis for these analyses has been the amount of intervention time provided to specific target employees (Kregel, Hill, & Banks, 1988). Intervention time refers to all activities, conducted by an employment specialist, that are designed to enable a specific target employee to obtain, learn, perform, or maintain at job. As such, intervention time may be used to gauge the intensity of services provided to a specific individual.

Analyzing the amount and type of intervention provided to target employees is useful for many reasons. Employment specialists may use this information to plan the process of fading their presence from the worksite, analyzing the types of services most frequently required by specific individuals, and managing their own time. Program

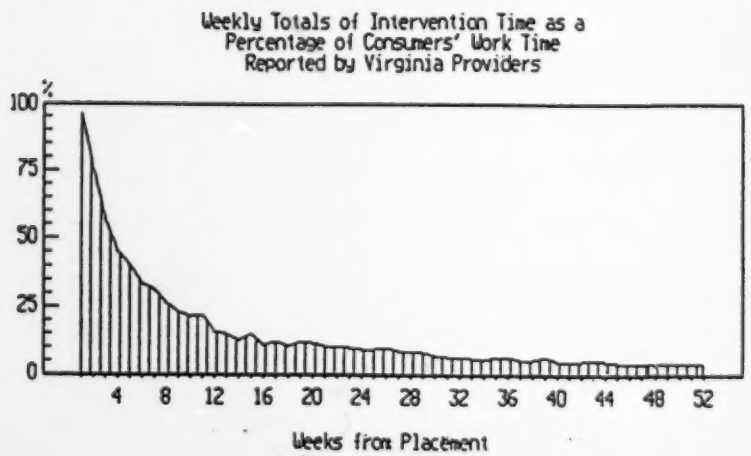
managers can use intervention time to monitor the activities of their staff, estimate the number of individuals that can be served by their program at any one time, determine the number of job coaches needed to achieve program goals, and project the costs of serving a specified number of consumers.

Previous research has focused on the amount of employment specialist intervention time provided to consumers in demonstration placement programs operated the VCU-RRTC. In an analysis of 51 representative consumers, Kregel, Hill, & Banks, (1988) reported that the average number of hours of intervention provided to individuals during their first year of employment was 161. Further, results of the study indicated that individuals with moderate or severe mental retardation did not require a significantly greater amount of intervention time than individuals with mild or borderline mental retardation.

Present analyses of all individuals represented in the VSEIS who have worked a minimum of 12 months indicate that an average of 174.5 hours of intervention time is provided to each individual during his or her first year of employment. As is expected in the individual placement model, the vast majority of intervention time is provided during the initial stages of employment. Approximately one-half of all intervention is provided during the first four weeks of employment, two-thirds during the first 12 weeks of employment, and 90% in the first six months of employment. Figure 1 illustrates this decline over time.

Figure 1

Total Intervention Time as a Percentage of Total Hours Worked Per Week



The figure of 174.5 hours per individual during the first year of employment should be interpreted cautiously. First, it must be recognized that this average resulted from a group of individuals with a mean IQ score of 53, who worked an average of 28 hours per week, in a state whose economy was generally growing during the time period in question. Programs working with individuals with different characteristics working in jobs for significantly greater or lesser periods of time in communities with significantly different economic conditions may achieve results substantially different from those in Virginia. Second, it is important to note that this figure represents an average for all individuals. Considerable variability exists among the target employees represented in the VSEIS, and in fact many target employees who require even several times the number of hours of intervention during the first year are able to successfully maintain employment with minimal intervention for many years thereafter.

In addition to investigating the amount of intervention provided to target employees, an issue of considerable importance in Virginia is the type of service provided to the individual. An analysis of the type of activities engaged in by employment specialists will help to define the major duties of these individuals as well as the kinds of services most needed by target employees.

In the VSEIS, employment specialists report all intervention on behalf of specific target employees in eight different categories. Two categories relate to job-site training activities (Time Active and Time Inactive) and six categories represent activities which in many instances occur away from the job site (Travel/Transport Time, Consumer Training Time, Consumer Program and Job Development, Direct Employment Advocacy, Indirect Employment Advocacy, and Consumer Screening/Evaluation). Kregel (in press) has described each of these eight categories in detail.

Table 11 displays the relative percentage of intervention provided to 944 target employees across the eight categories. Employment specialists spend 61.5% of their time engaged in activities that occur directly at the job site (Time Active and Time Inactive). By way of comparison, a very small percentage of time (2.4%) is devoted to consumer screening and evaluation, indicating that employment specialists in Virginia

emphasize the delivery of intensive services to the target employee after placement in an actual job rather than evaluation and testing activities prior to placement.

Other major activities of employment specialists such as job development, transportation training, and advocating on behalf of the individual with employers, family members, and other agencies are incorporated into intervention categories such as

Table 11

Consumer-Specific Intervention Hours Provided by Category

Intervention Time Category	Percent
Active time on Job Site	49.9
Inactive Time on Job Site	11.6
Travel and Transport Time	13.6
Consumer Training Time	3.4
Consumer Program Development	4.2
Direct Employment Advocacy	9.5
Indirect Employment Advocacy	5.4
Consumer Screening and Evaluation	2.4
Total	**100.0**

travel/transport time, consumer program development, direct employment advocacy, and indirect employment advocacy and account for over one-third of all employment specialist activities. These data emphasize the fact that a large amount of the services required by target employees require the employment specialist to devote a significant amount of time away from the job site. These activities are crucial to the ability of employment specialists to provide the ongoing support services necessary to enable target employees to successfully maintain employment.

Conclusion

This chapter provides a data based profile of supported employment program development in Virginia. There has been significant growth in the number of new programs developed and yet persons with mental retardation have been by far the greatest beneficiaries. Furthermore, only persons with mild and moderate levels of mental retardation have participated to a significant extent. Over 30% of the instances in which a person separated from employment occurred because of the economic

situation of the company, the consumer did not want to work, and/or the individual resigned to obtain a better job. The individual placement model of supported employment has easily been the most popular model utilized so far. Over the next several years, it is anticipated that the biggest changes in these data will be that persons with a greater diversity of severe disabilities will participate in supported employment.

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Supported Employment:

Promises Deferred for Persons with Severe Handicaps

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Abstract

The extent of supported employment participation by individuals with severe or profound handicaps was investigated through an analysis of the employment histories and functional characteristics of 1,411 individuals involved in supported employment programs in eight states. Results indicated that individuals currently participating in supported employment possessed very limited previous employment experiences, yet did not possess functional characteristics indicative of individuals with severe or profound handicaps. Persons with severe or profound handicaps were found to be minimally represented in current supported employment efforts' representing less than eight percent of all individuals investigated. Based upon the results of the study, recommendations are offered to enhance the opportunities of individuals with severe or profound handicaps to benefit from the national supported employment initiative, including the need for further research and demonstration activities and the necessity of immediate modification of federal and state supported employment policies.

During the 1970's systematic training technologies were developed and successfully used to enable persons with severe and profound mental retardation to perform complex vocational tasks previously felt to be far beyond their capabilities (Bellamy, Peterson, & Close, 1975; Gold, 1972; 1976; Hunter & Bellamy, 1977; O'Neill & Bellamy, 1978: Wehman, Renzaglia, Bates, & Schutz, 1977). While these demonstrations were small in number, their impact upon vocational training for persons with severe and profound handicaps was enormous. Future advances were anxiously anticipated as researchers began to apply the technologies in integrated, community-based settings.

The initial successes in training complex vocational tasks expanded to include intensive training in competitive employment settings (Rusch & Mithaug, 1980; Sowers, Thompson, & Connis, 1979; Wehman & Hill, 1980; Williams & Vogelsberg, 1980). Working primarily with individuals with moderate mental retardation, researchers demonstrated that people whose productive capacity had been viewed as "inconsequential" could obtain and maintain actual employment. The apparent power of the systematic training technologies and the success of these demonstration efforts quickly led to a reexamination of previous beliefs regarding the vocational potential of persons with severe and profound handicaps.

These early demonstration efforts occurred at a time when the prevailing view among most of the professional community was that even individuals with moderate mental retardation, to say nothing of persons with severe or profound handicaps, were incapable of any type of productive employment. Suddenly, other professionals were arguing that all persons, even those with severe mental retardation, could be successfully employed through the application of sophisticated training technologies. The spirit of the times is reflected in a statement by Rusch and Mithaugh (1980) :

> As we have learned about improved technologies to train complex vocational skills and about effective procedures to manage inappropriate behaviors, we have come to believe that even the most severely retarded persons has an untapped vocational potential that can be translated into productive and independent work (p. xv).

The success of these early competitive employment demonstration efforts resulted in vocal and powerful challenges to the very nature and structure of vocational services (Wehman, 1981) . Day activity and work activity programs were no longer viewed as the vocational alternatives of choice for persons with severe handicaps. These programs were criticized for their segregated nature, the inconsequential wages earned by program participants, and their failure to prepare individuals for less restrictive, integrated employment options. Simultaneously, rehabilitation programs were criticized for excluding persons with severe and profound mental retardation from services, based upon a perceived lack of potential for achieving gainful employment (Revell, Wehman, & Arnold 1984).

The efforts of advocates and the continuous growth in the number of programs successfully providing employment services to persons with severe handicaps led to a coordinated federal initiative to establish and implement integrated employment alternatives for individuals traditionally excluded from the rehabilitation system (Elder, 1984; Will, 1984). This movement, termed supported employment, was provided momentum through its inclusion in the 1984 Developmental Disabilities Act (P.L.98-527) as a priority area for activity by all state developmental disability councils and further through a series of 27 state systems change demonstration projects funded jointly by the office of Special Education and Rehabilitative Services (OSERS) and the Administration on Developmental Disabilities (ADD). The Vocational Rehabilitation Act Amendments of 1986 (P.L. 99-506) fully incorporated supported employment into the national rehabilitation system by modifying the prior definition of eligibility, providing funds for personnel preparation activities, and authorizing demonstration programs. The Act also established a specific funding stream (Title VI, Part C) that provided formula funding to promote the establishment of comprehensive supported employment programs in all 50 states.

The target population of individuals able to benefit from supported employment, as envisioned by policy-makers and advocates, includes individuals with severe and profound handicaps previously excluded from any type of meaningful employment. Wehman (1988) summarized the views of many:

> What makes a supported employment approach remarkable is the emphasis on working with the difficult-to-place, most severely handicapped population. Indeed, those vocational programs that are presumably engaging in supported employment activity should not only be providing paid employment in real work settings with long-term support but should be focusing upon the most severely handicapped (p.5).

Supported employment, as defined in the 1986 Amendments, is clearly intended to benefit individuals with severe disabilities, including those with the most severe handicaps, who previously had been denied access to the rehabilitation system. The Vocational Rehabilitation Act Amendments of 1986 identified the target population for supported employment:

> The supported employment program is intended to provide services to individuals who, because of the severity of their handicaps, would not traditionally be eligible for vocational rehabilitation services. Individuals who are eligible for services under the program must not be able to function independently in employment without intensive ongoing support services and must require these ongoing support services for the duration of their employment. Such term includes transitional employment for individuals with chronic mental illness. (P.L. 99-506, Title I, Sec. 103,I).

The supported employment provisions of the 1986 Amendments were viewed with cautious optimism by advocates of persons with severe and profound handicaps. on the one hand, the fact that individuals with profound handicaps had moved from being viewed as persons with no vocational potential to individuals eligible for vocational rehabilitation services and able to succeed in integrated competitive employment settings, was a remarkable achievement. On the other hand, the traditional inability of rehabilitation agencies to serve these individuals, and the perceived unwillingness of the vocational rehabilitation community to enthusiastically accept the supported employment concept (TASH Newsletter, November' 1987), raised doubts in the minds of many individuals regarding the degree to which the new federal initiative would actually benefit persons with severe and profound handicaps. While supported employment as a nationwide service delivery system is still a very new program, preliminary data (Wehman, Kregel, & Shafer, 1989) appear to confirm these doubts. An analysis of the outcomes of the 27 state systems change projects funded in 1985 and 1986 found that approximately 25,000 individuals were participating in supported

employment. The overwhelming majority of these individuals were persons with mental retardation (72%). Persons with long-term mental illness (15%) and individuals with autism, cerebral palsy, traumatic brain injury and sensory impairments (less than 5%) were far less likely to be receiving supported employment services. Significantly, only 11% of the individuals with an identified primary disability of mental retardation were persons with severe or profound mental retardation. Over half (58%) were identified as persons with mild or borderline mental retardation, and slightly less than a third (31%) were persons with moderate mental retardation.

The fact that only 11% of the participants with mental retardation (less than 8% of all supported employment participants) are persons with severe or profound mental retardation and that a sizable number of supported employment participants are individuals with mild or borderline mental retardation raises several serious questions. Who is participating in supported employment? To what extent is supported employment benefiting those individuals the program was developed to serve? what are the reasons that individuals with severe or profound handicaps are only minimally participating in supported employment at the present time and what modifications are required to increase the participation of these persons in the program? The intent of the present analysis is to address these questions and provide recommendations for ways in which more individuals with severe and profound handicaps can benefit from the federal supported employment initiative.

The specific purpose of this study is to provide a descriptive profile of the primary disabilities and functional characteristics of a group of 1,411 individuals participating in supported employment in eight states and tracked by the Rehabilitation Research and Training Center (RRTC) at Virginia Commonwealth University. The employment histories and behavioral repertoires of the entire group of individuals will be presented to provide an indication of the functioning level of supported employment participants.

Seven distinct groups of individuals will then be identified and examined to illustrate the range of individuals receiving supported employment services. After describing the population of individuals participating in supported employment, the results

of the analysis will be discussed in light of the intent of the national supported employment initiative to serve individuals not traditionally eligible for rehabilitation services, including persons with the most severe handicaps.

Method

Participants

The RRTC Supported Employment Information System tracks the employment outcomes of over 1,500 individuals served by over 80 local supported employment agencies in eight states. The sample of participants for the present analysis consisted of 1,411 individuals (92% of the entire data base) for whom complete information is available on all variables to be investigated.

Instrumentation

The information system consists of 243 distinct data elements that are obtained at various states of an individual's employment and examines a wide range of variables, including: a) consumer demographic information; b) consumer assessment information; c) detailed information on the specific job held by the consumer; d) amount and type of services received by the consumer; and e) employment outcome information, including wages, benefits, level of integration, reasons for separation, and supervisor evaluations.

The present analysis focused on two specific sets of information. The Consumer Information and Referral Form collects initial background information on each participant, including a detailed educational and employment history, a record of financial benefits received by the consumer, a rating of the consumer's functioning level in a variety of areas, and current service information. In the present analysis, information obtained from the form was used to described: 1) the demographic characteristics of each individual 2) the individual's previous employment history, including the amount of wages earned in the year prior to referral and attendance in activity centers, sheltered workshops, and community-based work experience settings; 3) the individual's record of previous institutionalization, if any, as well as the government financial benefits received by the individual; and 4) the individual's level of functioning in the areas of ambulation, vision,

hearing, fine motor, communication, and the presence of inappropriate behaviors that may challenge the individual's ability to work in integrated employment settings.

The Consumer Employment Screening Form summarizes assessment information regarding the consumer's employment needs and ability to perform a number of work-related behaviors. The form is not designed to screen individuals in or out of supported employment. Rather, it's intent is to provide the employment specialist sufficient information to match the individual to a specific job that meets the needs of the consumer. Information is obtained on: 1) the individual's desire and motivation to work; 2) the employment factors (wages, work shift, transportation to and from work, fringe benefits) that will affect a consumer's decision to accept a particular job; and 3) the consumer's ability to perform certain work-related behaviors that might influence the type of job appropriate for the individual. In the present analysis, the Consumer Employment Screening Form is used to provide information regarding the consumer's present level of performance in the areas of orienting, endurance, strength, independent work, attending, street-crossing, and "functional academics".

Procedure

A multi-step procedure was used to verify the accuracy and reliability of the data collected on the two forms. A comprehensive Data Management System Operations Manual (RRTC, 1987) was developed that contained precise instructions for completing each of the forms. All employment specialists in each of the local programs received six hours of training in the completion of all forms in the data management system. Initial training was provided by RRTC staff. Follow-up training and training for new employment specialists was then provided by regional consultants in each of the states represented in the analysis.

The Consumer Information and Referral Form is initially completed by the referral Source for each consumer. The form is then sent to the employment specialist, who contacts the consumer, his or her family, and the referral agency to verify the accuracy of the information provided and obtain additional information if required.

The Consumer Employment Screening Form is completed by the employment specialist assigned to a specific consumer. When completing the form, the employment

specialist summarizes the results of all screening and assessment activities conducted prior to placement, including interviews with the individual, their caregivers, and present service providers, direct observation of the consumer, a review of consumer records, situational assessments, and other assessment activities.

When completed, both forms were submitted to the RRTC for entry and analysis. when a form was received, a data management specialist reviewed each item for completeness and consistency with any other information available regarding the consumer. If necessary, the data management specialist contacted the employment specialist to verify responses, obtain missing data, or request additional information. The form was then entered for analysis using data entry programs containing error check procedures.

A total of 1,533 individuals were represented in the data base at the time of the study. An initial analysis was conducted to determine the individuals for whom complete, verified information had been obtained on each of the variables specified for the present study. This analysis identified 1,411 individuals for whom complete information was available and these individuals became the population for subsequent analyses.

Results

Results of the analyses will be provided in two stages. First, data will be presented that describe the characteristics of all individuals included in the analysis. This first stage will identify the primary disabilities of the individuals represented in the population of consumers and the type of employment model in which the individuals participate. Detailed descriptions of the consumers, previous employment and institutionalization history, key functional characteristics as specified on the Referral Form, and work-related skills possessed prior to supported employment placement as identified on the Consumer Screening Form will be provided. Second, the population will be subdivided into seven categories based upon the individual's identified primary disabilities. Analyses of the consumer's previous employment history, functional characteristics, and work-related skills will then be repeated to further investigate the characteristics of individuals participating in supported employment.

Characteristics of Entire Supported Employment Population

The mean age of all individuals at placement was 29. 6 years (median age = 26.9). Fifty-eight percent of the individuals were males, with individuals from identified minority groups up to 28% of the population.

Primary Disability - The primary disability of all participants is identified in Table 1. The overwhelming majority of individuals (83.4%) had been previously diagnosed as mentally retarded, 8.8% were individuals with long-term mental illness, 2.1% were individuals with traumatic brain injury, and 7.8% were persons with other identified primary disabilities. Individuals in this "other" category were persons with primary disabilities such as cerebral palsy, autism, sensory impairments, and other physical disabilities, all of whom represented less than 2.5% of the entire population and will therefore be grouped together for subsequent analyses. Individuals with traumatic brain injury, while representing a small percentage of the population, are isolated for analysis due to the emerging interest in this group of individuals within the supported employment movement. Of the 1,147 individuals labeled mentally retarded, 115 (10%) were identified as severely or profoundly mentally retarded, 38.3% moderately mentally retarded, 45% mildly mentally retarded, and 11.2% borderline mentally retarded.

Table 1

Primary Disability of All Consumers
(N = 1,411)

Primary Disability	Number	Percentage
Severe/Profound Mental Retardation	115	8.2%
Moderate Mental Retardation	388	27.5%
Mild Mental Retardation	516	36.6%
Borderline Mental Retardation	128	9.1%
Traumatic Brain Injury	30	2.1%
Long-Term Mental Illness	124	8.7%
Other Disabilities	110	7.8%
Total	1,411	100.0%

Type of Employment Model - Over three-fourth (77.8%) of the consumers were served in the individual placement model of supported employment. Enclave workers represented 9.4% of the population, mobile work crew members 8.6% of the population,

and small business model participants 4.2% of the population. The results of this analysis are summarized in Table 2.

Table 2

Type of Employment Model
(N = 1,411)

Employment Model	Number	Percentage
Individual	1,097	77.7
Enclave	132	9.4
Work Crew	123	8.7
Entrepreneurial	59	4.2

Previous Employment History - Given that supported employment is designed for individuals who have previously had difficulty obtaining and maintaining employment, the previous employment histories of the 1,411 individuals that were examined and described in Table 1, are not mutually exclusive, meaning that some individuals could have participated in two or even all three of the programs during the course of their employment history. About one quarter (24.1%) of all participants had previously attended an adult activity center (this category also included individuals with long-term mental illness who had attended psychosocial rehabilitation programs). Those individuals previously served in adult activity centers had been in the centers an average of 35 months. Over half (52.1%) had attended sheltered workshops. For these individuals, the average length of time spent in a workshop was 44 months. Previous community-based work experience was reported for 36.1% of the individuals, with an average of 31 months. Previous community-based work experience was reported for 36.1% of the individuals, with an average of 31 months. Previous community-based work experience, as defined in the referral form, included a large number of individuals who had participated on work crews or other community-based employment alternatives operated by an activity center or sheltered workshop. Also included in this category were a smaller number of individuals with long-term mental illness or traumatic brain injuries who had extensive competitive employment histories prior to being identified as disabled. Others were individuals with mental retardation who had held one or more competitive employment positions prior to entering the supported employment programs.

Table 3

Previous Employment History (All Consumers)
(N = 1,411)

Salary in Year Prior to Supported Employment	
Percentage of individuals reporting no earned wages in year prior to supported employment	43.0%
Average wages earned by consumers who reported earnings in year prior to supported employment	$1,655
Adult Activity Center Attendance	
Percentage of individuals who had previously attended an adult activity center	24.1%
Average length of adult activity center attendance	35 months
Sheltered Workshop Attendance	
Percentage of individuals who had previously attended a sheltered workshop	52.1%
Average length of sheltered workshop attendance	44 months
Community-Based Work Experience	
Percentage of individuals with previous community-based work experience	36.1%
Average length of competitive employment experience	31 months

Institutionalization and Disability Benefits - About one quarter (25.7%) of the participants had a previous history of institutionalization. The average length of institutionalization for these 362 individuals was 127 months, over ten and one-half years. Over 60 individuals had been institutionalized over 20 years, indicating that individuals who had spent most of the their lives in institutions were able to successfully participate in supported employment. Seventy-five percent of the entire population received some type of government benefits (SSI, SSDI, etc.) in the month prior to entering supported employment. The average total benefits for these individuals was $324 per month.

Key Functional Characteristics - Table 4 Summarizes information regarding the presence of secondary disabilities and chronic medical conditions, as well as consumers' level of functioning in areas such as mobility, hearing and vision, fine motor and communication abilities, and presence of significant inappropriate behaviors. Approximately half of the consumers were identified by their referring sources as having a secondary disability. Most frequently mentioned secondary disabilities included

communication disorders, convulsive disorders, and mental illness/emotional disorders. Chronic medical conditions potentially limiting a person's ability to work were reported for 8.3% of all consumers.

Table 4

Key Functional Characteristics of the Consumer Population
(N = 1,411)

	Percentage of Entire Consumer Population
Individuals reported to have a diagnosed secondary disability	50.2%
Individuals reported to have chronic medical conditions which interfere with their ability to perform work	8.3%
Significant or minor ambulation impairment	3.0%
Significant visual impairment or blindness	10.0%
Significant hearing impairment or deafness	6.7%
Severe fine motor impairment	2.4%
Inability to speak in snetences	5.5%
Displays inappropriate behaviors such as physically aggressive, self-injurious, or self-stimulatory behavior	10.3%

As is evident from table 4, only a small percentage of supported employment participants possessed any type of significant mobility, sensory, fine motor, or communication impairment. For example, only 3% of the consumers used wheelchairs or other aids for mobility. Only 5.5% were unable to speak in clear or fairly clear sentences. Similarly, 10.3% of the participants were reported to display significant inappropriate behaviors such as physically aggressive, self-stimulatory, or self-injurious behaviors.

Work Related Skills - Analysis of Consumer Screening Form responses provide an indication of the work-related skills possessed by participants prior to their placement in supported employment. The results of the analysis of key screening items are provided in Table 5. In most of the areas investigated, participants as a group possessed numerous work-related skills. Over 80% of the consumers were able to: 1) work more than two hours without a break; 2) orient among several rooms or throughout a building and grounds; and 3) attend to task with intermittent or infrequent prompts. In addition, 79.4% of the participants were able to maintain an average to significantly

above average independent work rate and 63.5% were able to repeatedly lift and carry objects weighing 30 lbs. or more.

Table 5

Consumers' Ability to Perform Work Related Skills Prior to Entering Supported Employment (N = 1,411)

Work Related Behavior	Percentage of Consumers
Orienting - Able to orient among several rooms or entire building and grounds	85.1%
Endurance - Able to work two or more hours without a break	88.8%
Strength - Able to lift objects weighing 30 to 40 lbs. for extended period of time	63.5%
Independent Work Rate - Able to maintain steady or above average pace for extended period of time	79.4%
Attention to Task - Works consistently with intermittent or infrequent prompts	93.7%
Street Crossing - Able to cross streets independently	88.9%
Functional Math - Able to add, subtract, and/or perform other computational skills	55.8%
Functional Reading - Able to perform simple reading or advanced reading skills	54.4%
Time Awareness - Able to tell time to the hour and minute	62.9%

The functional academic skills of the participants were also investigated and reported in Table 5. Over half of the consumers were able to: 1) add, subtract, or perform other advanced computational skills; 2) display simple or advanced reading skills; and 3) tell time to the hour and minute.

Participant Characteristics Differentiated by Disability Group

To investigate in greater detail the characteristics of supported employment participants, the population of consumers was categorized into seven groups - persons with severe or profound mental retardation, moderate mental retardation, mild mental retardation, borderline mental retardation, traumatic brain injury, long-term mental illness, and other disabilities. Results will be described in terms of type of employment model, previous employment and institutionalization history, functional characteristics, and work-related skills. These analyses are descriptive in nature, designed to detect socially relevant trends emerging from the results.

Type of Employment Model - The percentage of individuals from various disability groups placed into specific types of supported employment models is delineated in Table 6. In most instances, relatively consistent percentages of individuals from each group were represented in the various employment models. With the exception of consumers with severe or profound mental retardation, over 74% of the consumers in all groups were served in the individual placement model of supported employment. Persons with traumatic brain injury were most likely to be served in an individual placement model (93.%), followed by persons with moderate mental retardation, long-term mental illness, and other disabilities.

Table 6

Percentage of Individuals in Various Types of Employment Models

Primary Disability	Individual	Enclave	Work Crew	Entrepreneurial
Severe/Profound Mental Retardation	64.4	22.6	6.1	6.9
Moderate Mental Retardation	82.7	8.0	8.3	1.0
Mild Mental Retardation	74.4	9.5	10.3	5.8
Borderline Mental Retardation	78.1	6.3	7.1	8.5
Traumatic Brain Injury	93.4	0.0	3.3	3.3
Long-Term Mental Illness	81.5	7.3	11.3	0.0
Other	80.9	8.2	6.4	4.6

Individuals with severe of profound mental retardation were likely to be placed into mobile work crews or small business models at approximately the same rate as individuals from all other disability groups. However, the percentage of these persons placed into enclaves (22. 6%) was nearly two and one-half times greater than any of the other groups.

Previous Employment History - Table 7 Summarizes the previous employment histories of individuals in each of the disability groups. In terms of salary earned in the year prior to supported employment referral, Table 7 lists the percentage of individuals reporting any earned wages and the average wages earned by those individuals. Individuals with no wages earned were not included in the computation of average

earnings. In terms of activity center attendance, sheltered workshop attendance, and community-based work experience, Table 7 reports the percentage of individuals who had ever participated in these environments.

Table 7

Previous Employment History of Individuals with Various Primary Disabilities

	Salary in Year Prior to Participation				
	Percent Reporting Earnings	Average Reported Earnings	Adult Activity Center Attendance	Sheltered Workshop Attendance	Prior Competitive Employment Experience
Severe/Profound Mental Retardation (N = 115)	52.2%	$1,030	42.0%	49.5%	11.7%
Moderate Mental Retardation (N = 388)	50.9%	$1,283	22.2%	51.6%	24.1%
Mild Mental Retardation (N = 516)	68.8%	$1,694	20.6%	57.9%	37.1%
Borderline Mental Retardation (N = 128)	57.7%	$1,602	18.6%	61.8%	45.5%
Traumatic Brain Injury (N = 30)	36.0%	$2,300	7.1%	27.6%	57.7%
Long-Term Mental Illness N = 124)	43.9%	$3,224	46.3%	28.4%	72.4%
Other (N = 110)	47.8%	$1,751	21.1%	43.3%	46.1%

Individuals with traumatic brain injury or long-term mental illness were least likely to have earned wages in the year prior to referral to a supported employment program. However, these individuals reported the greatest amount of earned wages, on average, of any of the groups - $2,300 for individuals with traumatic brain injury and $3,224 for individuals with long-term mental illness. Focusing specifically on individuals with mental retardation, the percentage of individuals with reported earnings ranged between 50.9% for persons with moderate mental retardation to 68.8% for persons with mild mental retardation. Average earnings ranged from $1,030 for persons with severe or profound mental retardation to $1,694 for individuals with mild mental retardation. While this is a differences of over $600, it is not as significant a disparity as might have been anticipated.

Persons with severe or profound mental retardation or long-term mental illness were most likely to have attended activity centers, reflecting the number of participants

with long-term mental illness who had attended psychosocial rehabilitation programs. Not surprisingly, a much smaller percentage of individuals with moderate, mild, or borderline mental retardation and other disabilities reported activity center attendance (18.% to 22.2%). Individuals with severe or profound mental retardation reported the greatest average number of months of activity center attendance. This group, on average, had attended activity centers for over four years prior to entry into supported employment. Those individuals with moderate or mild mental retardation who previously had attended activity centers had, on average, spent over three years in these facilities.

Results of the analysis of previous sheltered workshop attendance followed a similar pattern. Persons with traumatic brain injury or long-term mental illness were far less likely to have ever attended a sheltered workshop than were individuals with mental retardation. Persons with mild or borderline mental retardation most frequently reported sheltered workshop attendance. Persons with mental retardation had generally spent between three and one-half and four and one-half years in a sheltered workshop prior to entering supported employment.

Information regarding the individual's previous community-based work experience is also contained in Table 7. Individuals with moderate, severe, or profound mental retardation were not only less likely to have reported community-based work experience, but also reported the shortest length of time in these environments. Only 11.7% of the persons with severe or profound mental retardation reported previous community-based experience.

Institutionalization and Disability Benefits - Table 8 summarizes the participant's institutionalization histories and specifies the disability benefits received in the month prior to referral to supported employment. Individuals with severe or profound mental retardation (45.2%) and long-term mental illness (52.1%) reported the highest rate of previous institutionalization. Individuals with mental retardation were generally more likely to have been institutionalized for a greater period of time prior to entry into supported employment. Individuals with moderate, severe, or profound mental retardation were also more likely to have received disability benefits in the month prior

to referral, although a majority of individuals in all disability groups received benefits. Total benefit amounts range from $311 to $410 per month.

Table 8
Institutionalization History and Benefits Received by Individuals with Various Primary Disabilities

Primary Disability	Institutionalization History		Government Benefits During Past Month	
	Percent Ever Institutionalized	Mean Length of Institutionalization (in months)	Percent Receiving Any Benefit	Total Monthly Benefit
Severe/Profound Mental Retardation	45.2%	212 mos.	94.2%	$311
Moderate Mental Retardation	22.8%	161 mos.	83.6%	$318
Mild Mental Retardation	22.4%	134 mos.	75.9%	$327
Borderline Mental Retardation	18.0%	49 mos.	65.6%	$324
Traumatic Brain Injury	27.6%	34 mos.	79.9%	$410
Long-Term Mental Illness	52.1%	35 mos.	56.4%	$330
Other Disabilities	13.5%	64 mos.	72.0%	$315

Key Functional Characteristics - The percentage of individuals with various primary disabilities reported to have a diagnosed secondary disability is provided in Table 9. In most instances, approximately half of all consumers were identified as having a secondary disability. Persons with long-term mental illness were least likely to report a secondary disability (37%), while persons with borderline mental retardation and individuals with other disabilities reported secondary disabilities most frequently. For persons with borderline mental retardation, long-term mental illness was the most frequently reported secondary disability. In all other cases, communication disorders and convulsive disorders were most often identified.

Table 9
Percentage of Individuals with Various Primary Disabilities Reported to Have a Diagnosed Secondary Disability

Primary Disability	Percentage of Individuals
Severe/Profound Mental Retardation	52.2%
Moderate Mental Retardation	49.5%
Mild Mental Retardation	47.9%
Borderline Mental Retardation	58.6%
Traumatic Brain Injury	53.3%
Long-Term Mental Illness	37.1%
Other Disabilities	65.5%

Several trends emerged from an analysis of the functional characteristics of individuals with various primary disabilities. Most significantly, with only minor variations, there was remarkable consistency in the percentage of persons in each group who displayed significant impairments in particular areas. Interestingly, persons with traumatic brain injury were most frequently identified as possessing significant functional impairments, particularly in the areas of ambulation, vision, and fine motor impairments.

Persons with severe or profound mental retardation in most instances were no more likely to possess significant functional limitation than individuals in other disability groups. Only in the areas of hearing and communication were a relatively higher percentage of significant impairments reported by persons with severe or profound mental retardation. Table 10 Summarizes the results of this analysis.

Table 10

Percentage of Individuals with Various Primary Disabilities Possessing Specific Functional Characteristics

Characteristic	Severe/ Profound MR	Moderate MR	Mild MR	Borderline MR	Traumatic Brain Injury	Long-Term Mental Illness	Other Disabilities
Significant Ambulation Impairment	1.9	0.8	0.6	3.6	17.9	0.0	22.2
Significant Visual Impairment	13.6	10.2	6.5	9.8	41.4	7.4	14.8
Significant Hearing Impairment	13.6	6.9	3.4	8.0	3.4	8.3	11.0
Severe Fine Motor Impairment	2.7	0.0	1.0	1.8	20.7	0.0	11.1
Inability to Speak in Sentences	22.0	8.1	1.7	3.6	3.6	0.8	7.4
Inappropriate Behaviors	12.7	10.5	9.0	16.5	4.0	9.0	8.7

Work-Related Skills - Similar results were obtained in an analysis of work-related skills across various disability groups. Again, results were extremely consistent across most of the groups. However, persons with traumatic brain injury, who were more likely to report significant functional impairments in several areas, possessed work-related skills equivalent to, or greater than, individuals in all other groups. Persons with severe or profound mental retardation were less likely to possess work-related skills prior to employment as opposed to other supported employment participants. As might be anticipated, this was particularly true in "functional academic" categories. However, when viewed in isolation, a substantial number of these individuals were reported to

have high levels of orienting, endurance, strength, and attending skills prior to entering supported employment. Results for all groups of participants are contained in Table 11.

Table 11

Percentage of Individuals with Various Primary Disabilities Possessing Specific Work Related Skills Prior to Supported Employment Placement

Work Related Behavior	Severe/ Profound MR	Moderate MR	Mild MR	Borderline MR	Traumatic Brain Injury	Long-Term Mental Illness	Other Disabilities
Orienting - Orient among several rooms or building wide	89.1	96.6	96.9	95.7	96.4	100.0	96.9
Endurance - Works two or more hours without break	71.3	87.4	92.3	92.4	78.6	96.2	87.6
Strength - Lift 30 or more pounds for extended periods	52.7	63.0	65.2	72.5	67.9	78.1	42.3
Attention to Task - Works steadily with intermittent or infrequent prompts	87.0	92.7	93.8	96.7	96.4	96.1	96.8
Functional Math - Adds, subtracts, or performs other computational skills	9.9	33.1	59.7	76.4	100.0	89.4	89.3
Functional Reading - Possesses simple or complex reading skills	5.9	27.0	60.9	78.4	96.5	91.9	91.2
Time Awareness - Tells time to the hour and minute	13.1	37.5	71.4	84.7	100.0	95.6	92.2

Discussion

The results of the present analysis are significant because they represent the first detailed descriptive analysis of the backgrounds and skill levels of a large number of supported employment participants served by local agencies across several states. With minor exceptions, the individuals in the present analysis are generally quite similar in terms of their primary disabilities and type of employment model to the supported employment participants represented in the Wehman, Kregel, and Shafer (1989) study of the 27 states with OSERS systems change grants. In comparing the two groups, individuals in the present study are more likely to have been labeled mentally retarded (81.4% to 71.6%) and to have been served in the individual placement model (77.7% to 64.5). Among the individuals labeled mentally retarded, the percentage of individuals with borderline mental retardation is substantially higher in the present study 11.2% of all mentally retarded persons compared to 3.2% of all mentally retarded persons in the Wehman, Kregel, & Shafer study.

When viewed collectively, the results presented above shed light on several issues crucial to the effective implementation of supported employment. In the remainder of this section, the implications of the present findings on two key issues will be discussed. First, is supported employment serving the individuals the program was intended to benefit? Second, to what extent are individuals with severe or profound handicaps participating in supported employment? After addressing these questions, recommendations for the future direction of the supported employment initiative will be provided.

Is supported employment serving the individuals the program was intended to benefit?

The participants represented in the analysis appear to at least partially meet the stated criteria for supported employment eligibility contained in the vocational Rehabilitation Act Amendments of 1986:

> (A) for individuals with severe handicaps for whom competitive employment has not traditionally occurred, or
>
> (B) for individuals for whom competitive employment has been interrupted or intermittent as a result of a severe disability, and who, because of their handicap, need on-going support services to perform such work. Such term includes transitional employment for individuals with chronic mental illness. (P.L. 99-506, Title I Sec.103,l)

Clearly, the supported employment participants described above possessed limited prior work experience and minimal earning power in the year prior to supported employment. Forty-three percent had earned nothing in the year prior to supported placement. Over half had previously attended a sheltered workshop, one-fourth had attended an activity center or psychosocial rehabilitation program and slightly over one-third had prior community-based work experience. Individuals with long-term mental illness and traumatic brain injury were most likely to have prior competitive employment experience. These individuals were also most likely to have reported no earnings in the year prior to supported employment placement, indicating a pattern of interrupted or intermittent employment. Most groups of people earned less than $2,300 except for those individuals with long-term mental illness who showed average earnings of $3,200.

At the same time, the results of the analyses of participants, functional characteristics and work-related skills possessed prior to placement do not indicate that

the local supported employment programs are currently serving individuals with the most severe handicaps. Individuals with mild or borderline mental retardation represented an alarmingly large percentage of the population. While about half of all participants possessed an identified secondary disability, only a very few individuals reported significant ambulation, sensory, communication, or fine motor impairments, or possessed medical conditions that interfered with work performance, or significant inappropriate behaviors.

Similarly, the individuals possessed many work-related skills prior to placement. The vast majority of possessed extremely high levels of orienting, endurance, strength, independence, and attending skills. Over half possessed functional math, reading, and time awareness skills. Although these skills obviously do not guarantee success in integrated work settings, or preclude the need for ongoing support provided in supported employment programs, they hardly describe a group of individuals who might be identified as possessing the "most severe handicaps".

This analysis is not meant to imply that the individuals represented in the data base are inappropriate for, or should not be served in, supported employment. To the extent that these individuals meet a key element of the eligibility definition, that is, the need for ongoing support services in order to sustain employment, they are indeed appropriate candidates for supported employment. Obviously, by virtue of their previous employment histories, these individuals are a part of a chronically unemployed group of people. The data presented in this analysis appear to indicate that while programs for the most part are serving a group of individuals appropriate for supported employment, they are not yet serving the entire range of individuals for whom supported employment was intended.

These data define a clear dichotomy. On the one hand, it appears that the majority of the participants may possess a disability or combination of disabilities that limit their ability to work to the extent that they meet the vocational rehabilitation definition of severe disability. At the same time, it seems quite clear that the individuals do not possess the significant functional limitations which many policy-makers and

advocates had hoped for in the original planning for supported employment (BellamY, Rhodes, Mank, & Albin, 1988; Rusch, 1986; Wehman & Moon, 1988; Will, 1984) .

In summary, it appears that the 80 local programs represented in the data base are serving individuals who have previously not participated in competitive employment or who have intermittent histories of competitive employment experience, thereby addressing the intent of the eligibility definition for supported employment contained in the Vocational Rehabilitation Act Amendments, the individuals for whom employment expectations were raised by the success of the university-based demonstration projects in the early 1980's, have yet to be incorporated into local supported employment efforts to any significant degree.

To what extent are persons with severe or profound handicaps participating in supported employment?

Individuals who possess severe or profound handicaps are usually identified for services through categorical or generic definitions (Geiger & Justen, 1983). A categorical approach makes explicit reference to a diagnostic category such as severe or profound mental retardation, autism, severe cerebral palsy, severe emotional disturbance, or multiple handicaps (including the deaf-blind category) as the persons most frequently comprising the population of individuals with severe or profound handicaps. Generic definitions emphasize behavioral characteristics (such a lack of self-care skills or inability to respond to directions or initiate communication with others) or the intensity and duration of supports required to enable individuals to "participate in the mainstream of community life" (Bellamy, 1985, p. 6). By either of these standards, persons with severe or profound handicaps are not participating in supported employment to any significant extent.

As stated previously, persons with severe or profound mental retardation comprise less that eight percent of the total number of supported employment participants. In addition, all persons with autism, cerebral palsy, and sensory impairments represent only four percent of the entire population. These totals are remarkably consistent with those reported in the analysis of 27 state supported employment programs.

Another finding of major importance relates to the functional characteristics and work-related skills possessed by consumers with severe or profound mental retardation. These data hardly describe a population of individuals with the behavioral characteristics of persons with severe or profound handicaps described above. Over half of these persons had earned wages averaging over $1,000 in the year prior to referral to supported employment. They were no more likely to possess ambulation impairments, fine motor impairments, or challenging behaviors that might interfere with their ability to work than the other groups of persons with disabilities. A majority possessed work-related skills prior to entry into supported employment inconsistent with the behavioral characteristics described above. These data clearly indicate that while persons with severe or profound mental retardation comprise only a very small percentage of the individuals participating in supported employment, an even smaller number of individuals with the behavioral characteristics indicative of individuals with severe or profound handicaps are currently being served in supported employment programs.

Implications for the National Supported Employment Initiative

Undeniably, tremendous progress has been made in improving employment opportunities for persons with severe disabilities in the last decade. However, it is critical that action be taken now to insure that persons with severe or profound handicaps are not excluded from supported employment programs as they were from other vocational alternatives in the past. Future supported employment implementation efforts should be based on the following three principles.

1. It can not be assumed that an effective technology currently exists that allows the independent participation of persons with severe and profound handicaps in integrated work environments. - An easy answer to the problems of supported employment participation for persons with severe and profound handicaps would be to argue that local programs continue to underestimate the employment potential of these individuals and remain unwilling to provide them the support required to enter integrated employment options. In our opinion, this is not the case. A substantial number of local programs are now truly committed to including individuals with severe or profound handicaps in their supported employment efforts. For these professionals, the problem

now is not should we, but rather how can we enable these consumers to benefit from supported employment.

The professional literature contains very few examples of clinical demonstrations that empirically document the success of persons with severe or profound handicaps in supported employment (e.g. Rhodes & Valenta, 1989; Wehman, Hill, Wood, & Parent, 1987; Wehman, Parent, wood, Kregel, & Inge, 1989). The vast majority of published literature remains focused on individuals with moderate mental retardation or other disabilities. For those local programs committed to incorporating individuals with severe or profound handicaps into supported employment, very little published research exists to point the way.

The development, demonstration, and dissemination of new and innovative service delivery models should be promoted and encouraged by funding agencies. The same efforts which have recently been devoted to the study of generalization and transfer of training issues (e.g., Horner, Dunlap, & Roegel, 1988) must be applied to integrated employment of persons with severe or profound handicaps. The spirit of experimentation prominent during the late 1970's and early 1980's should be renewed. It would be a serious mistake to "institutionalize" the four major supported employment models - individual placement, enclaves, mobile work crews, and small businesses too quickly as the only recognized service delivery models for supported employment (Bellamy, 1985). New technologies must continue to emerge, personnel preparation must be enhanced, and new approaches tested in order for supported employment to achieve this intended purposes.

2. <u>At the same time, it must be recognized that not all of the barriers to supported employment are technological; philosophical and political changes must occur as well</u>. As stated above we believe that many professionals are now deeply committed to assisting persons with severe or profound handicaps to experience the benefits of integrated employment. However, it is important to recognize that supported employment, and the belief that all individuals should participate in individually meaningful work, is a very new concept, one that is not shared by everyone in the rehabilitation community.

In too many instances persons with severe or profound handicaps are not allowed to benefit from existing service technologies because the rehabilitation community, employers, and the public at large remain unconvinced or unaware of their potential for meaningful work. Issues such as the cost effectiveness of providing services to these individuals outside segregated, congregate facilities, the willingness of employers and the public to allow "exposure" of these persons to the community at large, and even whether supported employment participation truly benefits or actually harms persons with disabilities are still frequently raised. The practice of attempting to first serve persons with mild disabilities before serving persons with severe handicaps, based on the erroneous belief that the latter group will be less likely to succeed in supported employment, is still strongly prevalent. Emphasis must continue to be placed not only on the development of new technologies, but also on methods to eliminate the philosophical and social barriers that artificially limit supported employment participation.

3. Federal and state policies must effectively encourage the incorporation of individuals with severe and profound handicaps into supported employment. Since 1986, federal, state, and local governments have moved with remarkable speed to build supported employment service capacity. Statewide service delivery systems now exist in a majority of states. Efforts have been focused on establishing funding mechanisms, developing interagency agreements, designing training and technical assistance resources, and securing adequate sources of funds. Much greater effort must now be directed toward the development of policies that encourage rather than merely allow local programs to provide services to persons with severe disabilities. A number of innovative policy approaches should be attempted and evaluated.

First, state and local policies should be developed that explicitly identify supported as the preferred employment alternative for individuals with severe or profound handicaps. Although many states are encouraging the replacement of congregate, segregated sheltered employment settings with supported employment alternatives, only a few states are mandating the reallocation of existing day programs with integrated employment options. A clear message should be sent to local service

agencies that individuals with severe or profound handicaps are to be included in all supported employment activities.

Second, discretionary funds and program start-up grants should be directed toward programs designed to benefit individuals with severe or profound handicaps. It is no longer necessary to "demonstrate" that individuals with moderate mental retardation, for example, are able to succeed in integrated employment settings. Now that statewide supported employment service delivery systems are in place in many areas of the country, future demonstration efforts should be targeted towards individuals who, to date, have not participated in supported employment to a significant degree.

Third, variable funding rates should be established to provide fiscal incentives for programs that serve persons with severe or profound handicaps. We believe that differentiated funding levels should be established that reimburse local programs based on the intensity and complexity of the training and support needs required by various supported employment participants. For example, Juhrs and Smith (1989) recently published excellent outcomes data related to the competitive jobs obtained by a group of individuals with autism. Long-term support for these individuals, however, was provided on a 1:1 or 1:2 basis for extended periods of time, resulting in costs much higher than those obtained in many other supported employment programs. Funding agencies must develop reimbursement mechanisms that maximize local flexibility in the design and delivery of services, to guarantee that individuals with unique needs will have an opportunity to realize the benefits of integrated employment.

Conclusion

Supported employment is providing opportunities for individuals with limited prior work experiences to enter and succeed in integrated employment settings for the first time. However, the present analysis adds further documentation to what appears to be a disturbing trend. Individuals with severe or profound handicaps have yet to benefit from these opportunities to any significant degree. Supported employment must become more than a program that serves individuals with mild or moderate mental retardation who previously had attended sheltered workshops or other adult day programs. Steps must be taken immediately to insure that individuals with severe or profound handicaps

are not excluded from these programs. As supported employment is rapidly evolving into a formal component of rehabilitation service delivery systems, eligibility for supported employment must not be limited to individuals who easily fit into one of four rigidly defined service delivery models. Future efforts should be focused on developing and demonstrating innovative, effective service delivery models, breaking down the attitudinal barriers that still restrict the participation of individuals with severe or profound handicaps, and developing policies and program regulations at all levels that clearly identify integrated employment as the sole service alternative for all individuals, including those with severe or profound handicaps.

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The Effects of Consumer Characteristics and Type of Employment Model on Individual Outcomes in Supported Employment

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Abstract

Although recent Federal legislation has led to a proliferation of supported employment programs throughout the country, little information is available that documents the success of these programs. The present study examines the effect of different consumer characteristics and alternative supported employment service delivery models upon key employment outcomes including hourly wage, hours worked per week, increase in earnings after supported employment participation, and level of integration on the job. The employment outcomes of a sample of 1,550 individuals receiving supported employment services through 96 local programs in eight states were analyzed to determine the effects of the key independent variables of primary disability and type of employment model. Results indicate that all groups of individuals, regardless of their primary disability, benefited significantly from supported employment participation. Further, data indicate that the individual placement model generated employment outcomes superior to those resulting from group employment options, particularly work crews. Implications of the results for future program development activities are discussed.

The supported employment movement represents an attempt to integrate individuals with developmental and other severe disabilities into the economic and social fabric of local communities and the mainstream of our nation's workforce. The movement has stimulated a national policy that designates community-based work environments as the appropriate employment alternative for many persons traditionally served in segregated, congregate facilities such as sheltered workshops and work activity centers (Bates, 1989; Kregel & McDonald, 1988; Kregel & Wehman, in press).

The incorporation of supported employment into the Rehabilitation Act Amendments of 1986 (P.L. 99-506) has effectively led to a nationwide proliferation of local supported employment programs. In a national survey of supported employment implementation in 27 states, Wehman, Kregel, Shafer, & West (1989) found that 25,000 individuals were participating in supported employment in over 1,400 local programs. Early implementation focused on individuals with mental retardation, but recent efforts have attempted to include individuals with long-term mental illness, cerebral palsy, traumatic brain injury, and other physical and sensory disabilities (Kreutzer & Morton, 1988; Wood, 1988).

Four distinct supported employment service delivery models - the individual placement, enclave, work crew, and small business models - have been frequently described in the professional literature (Mank, Rhodes, & Bellamy, 1986; Moon & Griffin, 1988). While it has been argued that these approaches are not the only appropriate supported employment service delivery models (Bellamy, 1985; Kregel & Wehman, in press), over 90% of all individuals participating in supported employment in 27 states are served by one of the four models (Wehman, et al., 1989).

The individual placement model (Wehman & Kregel, 1985) focuses on placing a single individual in a community-based job. Typically, job site training is provided by an employment specialist until the individual is able to perform the job to the satisfaction of the employer, at which time on site support is faded. Ongoing support services are then provided as needed throughout the course of the individual's employment.

In contrast to the individual placement model, the enclave, work crew, and small business models all provide services to groups of individuals with disabilities who work

together in community-based employment settings. These models may be viewed as less preferable (Brown, 1989), since working with a group of other persons with disabilities identifies or stigmatizes the individual worker, thereby limiting the opportunity for social integration with nonhandicapped co-workers and supervisors. However, they may be generally justified by the assertion that individuals with more significant disabilities, who would be unable to succeed in a more independent, individual placement, could successfully participate in community-based employment through a group employment option (Rusch, Trach, Winking, Tines, & Johnson, 1989).

An enclave (Rhodes & Valenta, 1985) consists of a small group of individuals working within a single community business or industry, earning wages based on productivity. Continuous, full-time supervision and training is provided by a supervisor who is employed by the host company or a local human services agency. In the work crew approach (Bourbeau, 1989) a small number of workers travel to different locations in the community performing specialized contract services. Crew members are generally employees of a not-for-profit agency that secures the contracts and provides continuous training and supervision. In the small business or entrepreneurial model (O,Bryan, 1989), a manufacturing or subcontract operation is established that employs individuals with severe disabilities as well as workers without handicaps and provides one type of product or service.

Very little is presently known about the relative effectiveness of the various supported employment models. Most supported employment research has focused on the outcomes generated by a single supported employment model (individual placement) for consumers with a single disability (mental retardation). As supported employment programs expand in terms of number, variety, and the types of individuals served, efforts should be made to investigate the relative success of the different models currently in practice and the extent to which they impact employment outcomes for individuals with various disabilities.

The purpose of the present investigation was to examine the relative efficacy of different supported employment models in providing meaningful employment outcomes for individuals with disabilities. Specifically, this investigation addressed the relationship

between an individual's primary disability and the key employment outcomes achieved through participation in supported employment (i.e., wages, hours worked, and level of integration). Additionally, the relationship between the type of employment model in which an individual is served and the key employment outcomes achieved by the individual was investigated.

Method

Sample

Through a series of cooperative agreements the Rehabilitation Research and Training Center on Supported Employment tracks the efforts of 96 local supported employment programs across eight states. Among the programs submitting information to the data base are large statewide supported employment programs operated by vocational rehabilitation agencies in Virginia, North Dakota, and Nevada, secondary school-based programs in Florida, a large regional program in California, and United Cerebral Palsy affiliates in New Jersey, Alabama, and Illinois.

A total of 1,608 individuals were represented in the data base at the time of the study. Of those, 1,550 (96%) were served in either the individual, enclave, work crew, or small business model of supported employment and as such comprised the sample for the investigation. The 58 individuals served in other types of supported employment models were not included in the subsequent analyses.

The primary disabilities of the individuals participating in supported employment were grouped into six categories. Individuals with mental retardation were classified based on their most recent psychological evaluation as severe or profound (8.2% of the sample), moderate (27.4%), mild (36.2%), or borderline (9.2%) according to AAMD (1983) criteria. The two other identified categories were persons with long-term mental illness (10.2% of the sample) and persons with physical and sensory disabilities. The category of persons with physical and sensory disabilities, which represented 8.8% of the entire sample, consisted primarily of persons with cerebral palsy (42% of the category) and traumatic brain injury (39%). The remaining individuals in this category were persons with sensory impairments (11%) and other physical disabilities (8%).

The individuals were predominantly served in the individual placement model (78.4%). Each of the other models, enclave (9.4%), work crew (8.5%), and small business (3.7%) accounted for less than ten percent of the entire sample. The average age of individuals in the sample was 29.6 years, with individuals with moderate mental retardation being slightly younger and individuals with long-term mental illness slightly older than other groups. About half of all individuals (49.5%) lived with their parents or other relatives, 16.8% lived independently, and the remainder (33.7%) lived in some type of community residential alternative.

Over three-quarters of all individuals (81.4%) earned over the federal minimum wage of $3.35 per hour. The vast majority of individuals worked part-time (71.8%) according to the Bureau of Labor criterion of 35 hours per week for full-time employment. Individuals with severe or profound mental retardation were less likely to earn minimum wage or work full-time than any other group. Thirty-six percent received no fringe benefits, with annual leave (45.6%), sick leave (34.0%), and medical insurance (33.2%) being the most frequently reported benefit.

A preliminary analysis was conducted to examine the relationship between an individual's primary disability and the type of employment model in which the individual was likely to be served. Table 1 indicates the percentage of individual's in each of the six categories of primary disabilities served in the four employment models. Chi-square analysis indicated a significant difference in the models in which individuals with various primary disabilities were served ($15, N = 1,550) = 74.518, $p < .0001$. An examination of individual cell chi-squares indicated that individuals with severe/profound mental retardation were more likely to be served in enclaves and less likely to be served in the individual placement model. Individuals with moderate mental retardation, long-term mental illness, and physical and sensory disabilities were less likely to participate in the small business model.

Instrumentation

The Supported Employment Management Information System is an individual consumer tracking system which consists of 243 distinct data elements that are obtained

Table 1

Percentage of Individuals in Various Employment Models

Primary Disability	Type of Employment Model*			
	Individual Placement (N = 1,215)	Enclave Model (N = 145)	Work Crew Model (N = 132)	Small Business Model (N = 58)
Severe/Profound Mental Retardation (N = 127)	64.4%	22.6%	6.1%	6.9%
Moderate Mental Retardation (N = 424)	82.7%	8.0%	8.3%	1.0%
Mild Mental Retardation (N = 561)	74.4%	9.5%	10.3%	5.8%
Borderline Mental Retardation (N = 143)	78.1%	6.3%	7.1%	8.5%
Long-Term Mental Illness (N = 158)	93.4%	0.0%	3.3%	3.3%
Physical and Sensory Disabilities (N = 137)	87.6%	4.4%	4.4%	3.6%

* X^2 (15, N = 1,550)) = 74.52, p, .0001

at various stages of each individual's employment experience. Nine different data forms collect information on: Consumer demographics, pre-employment work history and functional characteristics; characteristics of the specific job or jobs held by the consumer; employment outcome information, including wages earned, hours worked, benefits received, level of integration in the workplace, reasons for separation, and supervisor evaluation of work performance; and the amount and type of service provided to the consumer by the employment specialist.

Reliability

Numerous steps were taken to ensure and verify the accuracy and reliability of the data obtained for the analysis. All employment specialists were provided six hours of training in the completion of the data forms and the use of the management information system prior to initial data collection. Follow-up training was then provided as necessary, and staff from the RRTC Data Management Unit were available to answer questions on a daily basis. In addition, a comprehensive Data Management System Operations Manual (RRTC, 1987) was developed and disseminated to all

employment specialists that provided definitions of all data elements and precise directions for form completion.

Completed forms were sent to the RRTC for processing and analysis. Each form was first visually inspected by a data management specialist for completeness and consistency with any other information already available regarding the consumer. If necessary, the data management specialist contacted the employment specialist who submitted the form to obtain missing information, verify particular responses, or request additional information. The forms were then entered for mainframe computer analysis using data entry programs that contained error check procedures that prohibited the entry of values out of range for a particular data element or inconsistent with previously entered information regarding a specific consumer. Finally, key information on each consumer was summarized and returned to the local agency on a quarterly basis to allow the local employment specialists to review and confirm the accuracy of the information maintained in the system.

Data Analysis

The independent variables for the investigation were: 1) the primary disability of the consumer; and 2) the type of employment model in which the individual participated. Key dependent variables examined were wages in supported employment, hours worked per week, preemployment work histories, functional characteristics of the individual, and level of integration provided by a particular job setting. Level of integration was measured by employment specialists using a five point rating scale that focused on physical proximity, opportunities for interaction, and task interdependence.

Chi-square analyses were completed to investigate the relationship between primary disability and type of employment model and categorical variables such as functional characteristics. When significant differences were discovered, individual cell chi-squares were examined to determine the contribution of a particular cell to the total chi-square. To examine the relationship between primary disability and type of employment model and the continuous variables of wages earned, hours worked, and level of integration, one-way analyses of variance (ANOVA) were performed to determine the effect of the independent variable. Where differences were detected,

Student Newman-Kuels post-hoc tests were conducted to identify the group means that were significantly different.

Results

Relationship Between Primary Disability and Employment Outcomes

The hourly wage and hours worked per week for individuals with various primary disabilities are contained in Table 2. Significant effects for primary disability were found for both hourly wage (F (5,1549) = 29.80, p < .0001) and hours worked per week

(F (5,1549) = 8.50, p < .0001). Post-hoc tests revealed that persons with long-term mental illness and physical and sensory disabilities earned significantly higher hourly wages than individuals with any level of mental retardation. Post-hoc tests also revealed that persons with physical and sensory disabilities worked a significantly greater number of hours per week than individuals with severe/profound mental retardation.

Table 2

Wage Outcomes for Individuals with Various Primary Disabilities
(N = 1,550)

Primary Disability	Hourly Wage	Hours Worked Per Week	Monthly Earnings Prior to Supported Employment	Monthly Earnings During Supported Employment	Percent Change
Severe/Profound Mental Retardation	$3.09*	22.7**	$45	$298***	538%
Moderate Mental Retardation	$3.30	26.8	$55	$372	676%
Mild Mental Retardation	$3.15	26.5	$95	$361	280%
Borderline Mental Retardation	$3.27	27.6	$80	$392	390%
Long-Term Mental Illness	$3.74	28.0	$102	$454	345%
Physical and Sensory Disabilities	$4.28	29.6	$87	$556	539%

** (F(5,1549) = 29.80, p < .0001)
*** (F(5,1549) = 8.50, p < .0001)
* (F(5,1549) = 30.75, p < .0001)

To determine the change in individuals, monthly earnings prior to and during supported employment participation, mean monthly earnings for individuals prior to referral to supported employment and during supported employment participation were computed for each primary disability. Analysis of Variance failed to yield significance between primary disability and monthly wage prior to supported employment.

Significance was found between primary disability and monthly wage during supported employment participation (F (5,1549) = 30.75, p < .0001). Post-hoc tests revealed that persons with long-term mental illness and physical and sensory disabilities earned more per month than all other groups and persons with severe/profound mental retardation earned less than all other groups.

The effect of supported employment participation on the monthly earnings of individuals with various primary disabilities is also summarized in Table 2. Supported employment participation had a dramatic increase on the monthly wage of participants in all groups. The largest percentage increases were found for individuals with moderate mental retardation (576%), physical and sensory disabilities (539%), and severe/profound mental retardation (536%). Individuals with mild mental retardation experienced the smallest increase (280%), less than half that experienced by persons with moderate mental retardation.

Relationship Between Type of Model and Employment Outcomes

As indicated in Table 3, Analysis of Variance revealed a significant relationship between type of employment model and hourly wage (F (3,1549) = 243.27, p < .0001). Post-hoc tests indicated that persons in individual placements earned significantly higher hourly wages than persons served in any other model, and persons in the small business option earned significantly lower hourly wages when compared to all other groups. Analysis of Variance did not yield significance between type of model and monthly wages earned prior to supported employment. Significant differences were found between employment model and wages earned during supported employment (F (3,1549) = 69.16, p < .0001).

Table 3 also summarizes the effect of supported employment participation on the monthly wages earned by individuals in the four employment models. Participants in all models experienced substantial increases in their monthly earnings. Work crew participants experienced a relatively small increase of 164%.

Table 3

Wage Outcomes for Individuals in Various Employment Models
(N = 1,550)

Employment Model	Hourly Wage	Hours Worked Per Week	Monthly Earnings Prior to Supported Employment	Monthly Earnings During Supported Employment	Percent Change
Individual Placement	$3.68*	26.5	$80	$424**	430%
Enclaves	$3.25	28.7	$67	$301	349%
Work Crews	$2.32	27.6	$96	$253	164%
Small Business	$1.30	25.4	$46	$149	224%

* $(F(3,2549) = 243.27, p < .0001)$
** $(F(5,1549) = 69.16, p < .0001)$

Level of Integration

The potential of a supported employment setting to provide participants the opportunity for physical and social integration with nonhandicapped co-workers and the public at large was assessed by specialists using a five point rating scale. Mean ratings were computed for each of the primary disability categories and employment models. Analysis of Variance did not identify a significant relationship between primary disability and level of integration. However, a significant relationship was found between type of employment model and level of integration (F (3,1549) = 64.85, $p < .0001$). Post-hoc tests indicated that both enclaves ($x = 2.82$) and work crews ($x = 2.07$) provided a significantly lower opportunity for physical and social integration than individual placement ($x = 3.19$) or small business ($x = 3.07$) models, with work crews in particular lower than all other models.

Functional Characteristics

In view of the fact that type of employment model was found to be a significant determinant of monthly wages earned during supported employment and level of integration, additional analyses were performed to examine the functional characteristics of individuals participating in each of the four models. The percentage of individuals in each model possessing significant impairments in five key functional areas is contained in Table 4. Chi-square analyses were performed to investigate the relationship between type of employment model and functional characteristics.

A significant relationship was found between type of employment model and the presence of an ambulation impairment (3, (N = 1,550) = 38.115, $p < .0001$). Significant relationships were not found between type of model and vision, hearing, fine motor, or communication impairments.

Table 4

Percentage of Individuals in Various Employment Models Possessing Key Functional Characteristics (N = 1,550)

Characteristic	Individual Placement (N = 1,215)	Enclave Model (N = 145)	Work Crew Model (N = 132)	Small Business Model (N = 58)
	Type of employment Model			
Ambulation Impairment*	13.1%	14.8%	12.2%	47.5%
Visual Impairment	9.6%	8.4%	13.0%	15.0%
Hearing Impairment	6.8%	8.5%	7.6%	5.0%
Fine Motor Impairment	12.1%	12.8%	6.1%	17.5%
Communication Impairment	5.1%	10.6%	7.0%	5.0%

Note: The percentages reported indicate the percentage of individuals in each type of employment model possessing any type of functional impairment in each of the categories.

* X^2 (15, N = 1,550) = 74.52, $p < .0001$)

Discussion

The results of the present study clearly document that supported employment is fulfilling its major purpose. Large numbers of individuals previously unemployed or underemployed are earning wages three to five times greater than they were prior to entering supported employment while working in community-based settings providing substantial opportunities for interaction with co-workers and other members of the community. Supported employment appears to be effective for individuals with a variety of primary disabilities. However, not all supported employment programs appear to be equally effective. Group employment options, particularly work crews, do not provide earnings or integration opportunities available to participants in the individual placement model.

Increased Wages Earned by Participants

As stated previously, the intent of the federal/state supported employment initiative is to provide paid employment for individuals who have been traditionally unable to obtain or maintain such employment. If wages earned prior to supported employment participation are accepted as a valid indicator of unemployment or underemployment, then the results of the present study clearly provide powerful evidence of the effectiveness of supported employment in the 96 programs comprising the study sample. When monthly earnings prior to supported employment were compared to earnings during supported employment, individuals in all disability groups experienced dramatic increases, ranging from 280% to 574%.

It is interesting that the individuals who reported the lowest monthly earnings prior to supported employment, persons with severe, profound, or moderate mental retardation, along with persons with physical and sensory disabilities, experienced the greatest increase in earnings after supported employment participation (539% for persons with severe or profound mental retardation; 574% for persons with moderate mental retardation). The results clearly document that individuals with moderate, severe, or profound mental retardation, until recently thought to be unable to participate in competitive work settings or earn meaningful wages, experienced dramatic increases in their earning power after participation in supported employment.

Another important finding is the fact that individuals with long-term mental illness and physical and sensory disabilities also experienced significant wage increases through supported employment participation. Efforts to include persons with long-term mental illness, cerebral palsy, traumatic brain injury, and other physical and sensory disabilities have been hampered by conflicting program goals and funding policies that limit the availability of ongoing support services (Noble & Collignon, 1987). Results indicating that supported employment is able to improve the earning capacity and promote the vocational integration of these individuals should reinforce efforts to increase their level of participation in supported employment.

The Effectiveness of Various Employment Models

The results document that group employment models, particularly work crews, generate employment outcomes clearly inferior to those generated by the individual placement model. Work crew participants earned $1.36 less per hour, and $171 less per month, on average, than persons in the individual placement model. The increase in wages earned by persons in work crews prior to and during supported employment was less than that for any other model and less than half of the increase generated by the enclave and individual placement approaches. Work crew participants were placed into employment settings which provided far less opportunity for physical and social integration with co-workers and the public at large. When evaluated in light of the basic premise of supported employment, paid work in integrated work settings, the findings of the present study indicate that work crews are clearly less effective than other supported employment alternatives and lend support to the efforts of Brown (1989) and others to discredit work crews as a viable supported employment service delivery model. It should be noted that the small business model also generated relatively poor employment outcomes. However, the small business model actually provided more integration than the work crew, and there was some evidence to indicate that the small business model was serving individuals with more severe disabilities.

The unfavorable outcomes generated by the work crew model could perhaps be justified if the individuals served in the model were found to possess characteristics that would limit their participation in models that produce more positive employment outcomes. While the present study did not address all potential characteristics, the results presented do not support this justification. Work crews were not made up of a preponderance of individuals with severe or profound mental retardation, in fact, the largest group of work crew participants were individuals with mild mental retardation. The previous employment histories of work crew participants, in terms of work activity center attendance, previous community-based employment experience, and amount of public financial support at the time of supported employment placement were no different than those of individuals in any of the other models. Also, they were no more

likely than any other group to possess significant functional limitations in areas such as ambulation, vision, hearing, fine motor, or communication.

The present study found that work crews generate employment outcomes inferior to those of other supported employment models and failed to identify any characteristics of the individuals participating in the work crew model that would account for these outcomes. In light of these findings, it falls upon proponents of the work crew model of supported employment to present: 1) evidence that documents employment outcomes generated by work crew participation that exceed those found in the study sample (i.e., the work crews in the present sample do not reflect the outcomes of other work crews in operation in other parts of the country, such as work crews operated under the provisions of the Javits, Wagner, O'Day Act), or 2) evidence that refutes the notion that work crew participants do not possess functional limitations or any other characteristics that would preclude their participation in more effective supported employment alternatives.

Implications for Program Development

The findings of the present study are limited in that they are derived from only those individuals and programs that contribute data to the Supported Employment Management Information System. Further, two variables used in the analysis, key functional characteristics and level of integration, involve clinical judgments on the part of individual employment specialists. While steps were taken to maximize the reliability of the information provided, some variability in the way individual employment specialists rated these items may remain.

However, the size of the sample for the study was quite large and the data was generated from numerous programs in several states. Further, the rate of participation by individuals with various primary disabilities and the types of employment models represented in the sample are consistent with those reported in national studies of supported employment implementation (Wehman, Kregel, Shafer, & West, 1989). Based upon the results presented and discussed above, two recommendations are made for future research and program development efforts.

First, current efforts to include persons with severe or profound mental retardation, long-term mental illness, and physical or sensory disabilities such as cerebral palsy or traumatic brain injury in supported employment programs should be significantly expanded. Funding barriers in many states make it difficult at the present time to provide supported employment services to persons with cerebral palsy, traumatic brain injury, and other physical and sensory disabilities. Individuals with severe or profound mental retardation have yet to be fully served in supported employment due to a number of factors, including attitudinal barriers and lack of effective training technologies (Kregel & Wehman, in press). However, these individuals were among those who benefited most from supported employment participation. The obvious benefits of supported employment participation for these individuals indicate an urgent need for a concerted federal, state, and local effort to overcome funding and programmatic barriers to provide supported employment services to these underserved populations.

Second, the role of group employment options, particularly mobile crews, should be critically examined. The results of the present study appear to indicate that the most significant predictor of an individual's key supported employment outcomes is the type of employment model into which an individual is placed. In light of these findings, several steps should be taken. The individual placement model should be viewed as the preferred supported employment alternative for all individuals able to succeed in the model. Group employment options, when used, should be reserved for individuals who have demonstrated an inability to succeed in the individual placement approach. Significant research and development efforts must be focused on the development of assessment strategies that will prevent individuals from being inappropriately placed into group employment options.

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Employment Outcomes of Persons Following Traumatic Brain Injury: Preinjury, Postinjury, and Supported Employment

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Abstract

This paper provides a prospective analysis of the preinjury, postinjury and supported employment work histories of 20 persons who survived a severe head injury. All persons had a very limited or inconsistent work history postinjury due to the severity of the injury. Data are presented on the placement outcomes such as wages, hours worked, months of employment and type of occupation. The supported employment model is described and the job coach approach is presented in some detail. The most significant finding of this preliminary report is that, as an aggregate group, supported employment was able to facilitate restoration of vocational capacity from preinjury levels based on total months worked.

Returning to meaningful paid employment has proven to be difficult for many persons recovering from traumatic brain injury. Brooks and associates (1), for example, found that within the first seven years postinjury only 29% of a sample of 98 persons were employed compared to a rate of 86% before injury. Jacobs (2), in a comprehensive survey of 142 head injured patients in Los Angeles, California, found that wages were the primary source of income for 78% of respondents preinjury compared with only 26.7% postinjury. These two major studies and many other reports by Stapleton (3), Weddell, Oddy, and Jenkins (4), Dresser (5), Ben-Yishay et al. (6), and MacKenzie (7) all support the apparent disappointing long-term vocational outcome for patients who have experienced a severe head injury. Notably, efforts to assess pre vs. postinjury vocational outcome have used either a survey or structured interview format.

Several approaches have been used to improve vocational outcome. Prigatano and colleagues (8) present a cognitive training program which focuses on improving cognitive and social deficits. Ben-Yishay and his associates have developed a comprehensive program of holistic cognitive remediation and occupational trials (6). Unfortunately, with both of these approaches there has been little evidence of skill generalization and maintenance. Because of these problems Fawber and Wachter (9), argue for more structured job placement and case management. Wehman, Kreutzer, and their colleagues have presented a supported employment model to help place and retain difficult to place individuals with severe disabilities (10,11). This approach focuses not only on structured job placement and case management but heavily on job retention and generalization.

The supported employment approach, which has been described earlier by Kreutzer and Morton (12) and also by Kreutzer, Wehman, et al. (13), has the advantage of providing direct professional staff support at the point of placement in the work environment. An employment specialist, also known as a job coach, focuses exclusively on one client at the workplace. Training and counseling support are provided over a number of weeks or months until the individual's performance is stabilized. At that time the employment specialist "fades" his or her time from the job site. Clients are usually

accepted only if they have failed with other rehabilitation approaches to placement and have been consistently unable to gain or hold any competitive job.

At the Medical College of Virginia we have been using a supported employment approach to enhance return to work outcomes for approximately two years. While most of the persons referred to in this program are at least partially ambulatory, they have all experienced severe head injuries (Glascow Coma Scale <10). Also, none of them has demonstrated a consistent work record since their injury.

Therefore, it is the purpose of this paper to report on the preinjury work history, postinjury work history, and supported employment work performance of individuals with traumatic brain injury who have been placed into competitive employment. We believe in order to fully assess the meaning of vocational outcomes postinjury that it is critical to determine the preinjury occupational status of a client. Competitive employment is defined as at least U.S. federal minimum wage of $3.35/hr. and employment in work environments with people who are not labeled as being handicapped.

Method

Client Profile

All clients are under medical supervision of a physiatrist upon referral to the supported employment program. A total of 41 clients have been referred from physicians, psychologists, rehabilitation counselors, and families for supported employment services. Virtually all have been initially accepted for potential placement provided they are between 18 and 64 years of age, have a history of severe head injury, and are not active substance abusers. There are no exclusion criteria based on cognitive, physical, or social limitations. However, there must also be a very strong indication that the person cannot work successfully without ongoing job support. This indication is determined by (a) documented previous employment failures, postinjury, or (b) reports from the family, physician, referring rehabilitation counselor, or client indicating concern about independent work ability.

In Table 1 is a brief description of the persons placed to date and selected demographic information along with the major presenting vocational problems. The

Table 1

Client Demographic Profiles

Client No.	Gender	Age at Injury	Cause of Injury	Length of Coma (days)	Current Age	Preinjury Educational Level	Current Residential Status	Major Presenting Vocational Problem Areas
1.	M	12	Auto accident	35	31	Elementary student	Independent	Nervousness, restlessness, anxiety, memory
2.	M	48	Fall in home	Unknown	50	Some college courses	Independent	Complex reasoning, stress tolerance, memory
3.	M	21	Auto accident	53	27	College graduate	Parents' home	Motor/coordination, strength
4.	F	23	Struck by auto	92	27	Some college courses	Parents' home	Short-term memory, fine motor, compliance
5.	M	30	Auto accident	60	33	High school graduate	Shares home	Motor/ambulation, fine motor coord, strength
6.	M	24	Auto accident	21	31	High school graduate	Parents' home	Short-term memory, following instructions
7.	M	34	Auto accident	92	39	Some college courses	Parents' home	Vision, memory, ambulation, speech, fine motor
8.	M	19	Auto accident	60	27	High school graduate	Supervised apt	Ambulation, memory, wandering, argumentative
9.	M	15	Motorcycle acc.	92	30	Some college courses	Independent	Temper, argumentative
10.	M	23	Auto accident	233	31	Some high school	Parents' home	Ambulation, fine motor coordination
11.	M	16	Gunshot wound	3	18	Some college courses	Parents' home	Ambulation, seizures, memory, vision
12.	M	9	Auto accident	138	20	Elementary student	Parents' home	Work speed, compliance with instructions
13.	M	27	Motorcycle acc.	59	29	High school graduate	Parents' home	Vision, coordination, communication
14.	M	20	Auto accident	153	33	College student	Supervised apt	Short-term memory, thinking, motor/coordination
15.	M	16	Auto accident	10	37	High school student	Independent	Seizures, attention span, memory
16.	F	24	Auto accident	1	26	High school graduate	Independent	Motor strength, coordination, concentration
17.	M	20	Auto accident	62	26	Some high school	Supervised apt	Memory, strength, extended standing or walking
18.	M	14	Auto accident	120	31	Some college courses	Supervised apt	Vision, motivation, memory, coordination
19.	M	27	Struck by auto	5	28	Some college courses	Independent	Speech, thinking and organization skills
20.	M	22	Motorcycle acc.	11	25	High school graduate	Supervised apt	Vision, memory, depression, coordination
Means =		22.2		65.0	29.9			

mean age at injury was 22 years, with the current age of each person placed being 30. Time in coma averaged 68 days with a range of 3 days to 233 days. A total of 92.1% have received some form of financial aid. A total of 89.4% of all persons experienced head injuries as a result of motor vehicle accidents. It should also be noted in Table 1 consistent with the findings of Ben-Yishay, et.al. (6) and Brooks et.al. (1) that 12 of the 20 persons (60%) experienced memory problems; 10 persons or 50% presented serious motor and/or ambulation limitations.

An effort is made to complete a neuropsychological and psychiatric examination on each person referred for supported employment. Measures of intellectual, cognitive, and psychomotor ability include the Galveston Orientation Amnesia Test (GOAT) as well as portions of the Wechsler Adult Intelligence Scale Revised, the Wide Range Achievement Test-Revised (WRAT), and the Halstead-Reitan. On most of the subtests of the battery, scores were below the 50th percentile relative to the normal population with a range of 10% to 59%. More in-depth information about the cognitive and psychiatric aspects of the entire population of clients drawn from can be found in another paper (11).

Data Management System

Data are collected on a number of key outcome measures. The data are collected at initial intake and then after placement are recorded weekly by employment specialists in the program. These data are then stored in the university mainframe computer.

Employment data management system. The employment data management system allows evaluation to occur at the individual, program, and system levels. Numerous client-related job performance factors are evaluated, such as wages earned and hours worked weekly as well as direct behavioral observation of work performance. Additionally, employers are asked to fill out a five-point Likert scale form periodically on the work habits of the placed clients.

Monthly employment ratio. A key outcome indicator used to assess return to work capacity is the monthly employment ratio. We have developed this index of assessing vocational outcome because of the difficulty in capturing vocational progress

and retention presented by many post-acute severely head injured individuals. The strength of this index is that it directly measures over time the actual work behavior exhibited by the individual.

The employment ratio is derived by dividing the number of months the client was employed during an employment phase by the total possible months that he/she would have had an opportunity to be employed. For determining the month of first employability for the employment phases, the following protocol was used:

1) If the client was injured as a child or teenager, the 20th birthday was used as the date of first employability for the postinjury phase, unless the client's work history also began prior to the 20th birthday. In those cases the start date of the client's first job was used as the beginning of employability for the preinjury phase.

2) For those clients injured as adults, the 20th birthday was used as the month of first employability for the preinjury phase. The start date of the postinjury phase was determined to be the date of hospital discharge.

3) If the date of hospital discharge was unknown, a date of first employability was derived by adding six months to the end of the period the client was comatose.

4) The supported employment phase is initiated by the date of first placement and continues either to the current date or to a date of final discharge from the program.

Major Components of Supported Employment Program Model

Screening and job placement. When clients are referred to the supported employment program for placement they are individually interviewed, previous vocational histories are reviewed, and home visits are made for the purpose of determining the nature of employment and work situation by the client. No standardized or formal vocational evaluation testing is performed. However, an in-depth analysis of potential job sites is undertaken by the employment specialist. Each person is rated on 23 items ranging from transportation, willingness to work part-time versus full-time, endurance

Table 2

Consumer Screening Form

CONSUMER:

Name:_____
Social Security #:_____
Date of screening (month/day/year):_____
Type of screening: Initial _____ Ongoing/Employed _____ Ongoing/Unemployed _____
Total number of hours per week presently working: _____ months per year: _____

STAFF MEMBER COMPLETING FORM:

Name:_____
I.D. Code:_____

General Directions: PLEASE DO NOT LEAVE ANY ITEM UNANSWERED

Indicate the most appropriate response for each item based on observations of the consumer and interviews with individuals who know the consumer (i.e., family members, adult service providers, school personnel, employers).

1. Availability: (Circle Yes or No for each Item)	Will Work Weekends Yes / No	Will Work Evenings Yes / No	Will Work Part-time Yes / No	Will Work Full-time Yes / No	
Specifics/Comments:					
2. Transportation: (Circle Yes or No for each Item)	Transportation Available Yes / No	Access to Specialized Travel Services Yes / No	Lives On Bus Route Yes / No	Family Will Transport Yes / No	Provides own transportation (Bike, Car, Walks, Etc.) Yes / No
Specifics/Comments:					
3. Strength: Lifting and Carrying	Poor (< 10 lbs.) _____	Fair (10 - 20 lbs.) _____	Average (30 - 40 lbs.) _____	Strong (> 50 lbs.) _____	
Specifics/Comments:					
4. Endurance: (Without break)	Works < 2 hours _____	Works 2 - 3 hours _____	Works 3 - 4 hours _____	Works > 4 hours _____	
Specifics/Comments:					
5. Orienting:	Small Area Only _____	One Room _____	Several Rooms _____	Building Wide _____	Building and Grounds _____
Specifics/Comments:					
6. Physical Mobility:	Sit/Stand in One Area _____	Fair Ambulation _____	Stairs/Minor Obstacles _____	Full Physical Abilities _____	
Specifics/Comments:					
7. Independent Work Rate: (No Prompts)	Slow Pace _____	Steady/ Average Pace _____	Above Average/ Sometimes Fast Pace _____	Continual Fast Pace _____	
Specifics/Comments:					
8. Appearance:	Unkempt/ Poor Hygiene _____	Unkempt/ Clean _____	Neat/Clean but Clothing Unmatched _____	Neat/Clean and Clothing Matched _____	
Specifics/Comments:					
9. Communication:	Uses Sounds/ Gestures _____	Uses Key Words/Signs _____	Speaks Unclearly _____	Speaks Clearly Intelligible to Strangers _____	
Specifics/Comments:					
10. Appropriate Social Interactions:	Rarely Interacts Appropriately _____	Polite, Responds Appropriately _____	Initiates Social Interactions Infrequently _____	Initiates Social Interactions Frequently _____	
Specifics/Comments:					
11. Unusual Behaviors:	Many Unusual Behaviors _____	Few Unusual Behaviors _____	No Unusual Behaviors _____		
Specifics/Comments:					
12. Attention to Task/ Perseverance:	Frequent Prompts Required _____	Intermittent Prompts/High Supervision Required _____	Intermittent Prompts/Low Supervision Required _____	Infrequent Prompts/Low Supervision Required _____	
Specifics/Comments:					
13. Independent Sequencing of Job Duties:	Cannot Perform Tasks in Sequence _____	Performs 2 - 3 Tasks in Sequence _____	Performs 4 - 6 Tasks in Sequence _____	Performs 7 or More Tasks Sequence _____	
Specifics/Comments:					

14. Initiative/ Motivation:	Always Seeks Work	Sometimes Volunteers	Waits for Directions	Avoids Next Task
Specifics/Comments:				
15. Adapting to Change:	Adapts to Change	Adapts to Change With Some Difficulty	Adapts to Change With Great Difficulty	Rigid Routine Required
Specifics/Comments:				
16. Reinforcement Needs:	Frequently Required	Intermittent (Daily) Sufficient	Infrequent (Weekly) Sufficient	Paycheck Sufficient
Specifics/Comments:				
17. Family Support:	Very Supportive of Work	Supportive of Work with Reservations	Indifferent About Work	Negative About Work
Specifics/Comments:				
18. Consumer's Financial Situation:	Financial Ramifications No Obstacles	Requires Job with Benefits	Reduction of Financial Aid is a Concern	Unwilling to Give Up Financial Aid
Specifics/Comments:				
19. Discrimination Skills:	Cannot Distinguish Between Work Supplies	Distinguishes Between Work Supplies with an External Cue	Distinguishes Between Work Supplies	
Specifics/Comments:				
20. Time Awareness:	Unaware of Time and Clock Function	Identifies Breaks and Lunch	Can Tell Time to the Hour	Can Tell Time in Hours and Minutes
Specifics/Comments:				
21. Functional Reading:	None	Sight Words/ Symbols	Simple Reading	Fluent Reading
Specifics/Comments:				
22. Functional Math:	None	Simple Counting	Simple Addition/ Subtraction	Computational Skills
Specifics/Comments:				
23. Independent Street Crossing:	None	Crosses two Lane Street with Light	Crosses two Lane Street Without Light	Crosses Four Lane Street With Light	Crosses four Lane Street Without Light
Specifics/Comments:				
24. Handling Criticism/ Stress:	Resistive/ Argumentative	Withdraws into Silence	Accepts Criticism Doesn't Change Behavior	Accepts Criticism Changes Behavior
Specifics/Comments:				
25. Acts/Speaks Aggressively:	Hourly	Daily	Weekly	Monthly	Never
Specifics/Comments:				
26. Travel Skills: (Circle Yes or No for each item)	Requires Bus Training	Uses Bus Independently/ No Transfer	Uses Bus Independently/ Makes Transfer	Able to Make Own Travel Arrangements
	Yes / No	Yes / No	Yes / No	Yes / No
Specifics/Comments:				

27. Benefits Consumer Needs (Circle Yes or No for each choice):

Yes / No	0 = None	Yes / No	4 = Dental Benefits
Yes / No	1 = Sick Leave	Yes / No	5 = Employee Discounts
Yes / No	2 = Medical/Health Benefits	Yes / No	6 = Free or Reduced Meals
Yes / No	3 = Paid Vacation/Annual Leave	Yes / No	7 = Other (Specify):_____

28. Check all that Consumer has Performed:

__Buffing	__Bus Tables	__Sweeping	__Dish Machine Use	__Keeping Busy
__Vacuuming	__Food Preparation	__Assembly	__Mopping (Indus)	__Clerical
__Food Line Supply	__Pot Scrubbing	__Dusting	__Restroom Cleaning	__Trash Disposal
__Washing Equipment	__Stocking	__Food Serving	__Other _____	

Medications:_____ Medical Complications/Conditions:_____

required in specific job, etc., as different potential job opportunities arise by the employment specialist. This form which is provided in Table 2 provides an ecological analysis of the assets and liabilities of the client and, even more, a profile of what types of work conditions will be acceptable and not acceptable. Items on the Consumers Screening Form are then compared with identical items on a Job Screening Form, thus providing employment specialists with an instrument for matching supported employment clients with available jobs.

Screening takes place for all referred clients while employment specialists are doing job development and contacting businesses for possible jobs. With the use of a detailed job analysis, staff go to businesses and are able to extensively analyze the most salient aspects of a given job. Jobs are selected for analysis in many different fields such as child care, manufacturing, food service, and other types of business. Client interests and previous employment are key elements in determining the general area of occupational interest which employment specialists investigate.

Job site training and compensatory strategies. At the point of initial placement and employment, the employment specialist accompanies the client to the job site and stays for as long a period as is reasonably expected to stabilize job performance. Stabilization has been defined previously in individual placement of supported employment programs as the point at which the client requires 20% or less of the employment specialist's time at the job site (15). This can take weeks or even months of daily intervention. Behavioral training, skill training, social adjustment, cognitive training strategies, and physical adaptations are among the types of interventions which are utilized at the job site. Often the employment specialist will have to help in completion of the job. Considerations that are accounted for in choosing a particular cognitive compensatory strategy include: 1) the general cognitive level of the individual and how they learn best, 2) degree of short-term memory loss, 3) the individual's effective self-selected strategies, 4) problem-solving ability, and 5) opportunity to use compensatory skills in a functional setting. One primary consideration in the selection of effective compensatory strategies is the participation of the client in planning.

Job retention. As the client becomes increasingly competent at work, the amount of staff time required at the job site for support will be reduced. Gradual removal of the job coach from the job site is usually completed by several strategies. These include: (a) unobtrusive observation of the client's performance, (b) frequent phone communication with the supervisor or immediate intervention (if warranted) at the job site when it appears that the person is at risk of losing the job, (c) ongoing efforts to help the person with psychosocial adjustment in the work environment, and (d) helping arrange whatever community services are necessary to deal with nonvocational problems which may arise. Taking a proactive and anticipatory position toward job retention is an essential aspect of the supported employment model.

Staffing

Employment specialists who provided services in this program had either Bachelors or Masters degrees in counseling, adult education, or psychology. The work expectations for them were (a) job placement skills; (b) ability to train head injured clients at a job site; (c) counseling skills with the employer, family, and client; and (d) skill in travel training and other aspects of arranging employment. A total of 4.0 employment specialists have been involved in the placements reported in this paper to date.

Results

Preinjury, postinjury, and supported employment work histories for each client are presented in Table 3, including the number of known positions, the type of job last held, mean wages and hours per week, and the monthly employment ratio during each phase of employment. Figures 1-3 display in graphic form the mean values for hourly wages, work hours per week, and employment ratios by employment phase. Figure 3 indicates that the amount of work during support (89%) was comparable to the preinjury levels of the group.

Preinjury work histories. Five of the 20 clients were injured prior to their 20th birthday and were therefore not included in the preinjury analyses of the dependent variables. Of the remainder, ten (66.7%) were full-time employees at the time of injury. Seven (46.7%) had been employed continuously from their date of first employability

Table 3

Client Work Histories

Client No.	Preinjury Jobs[1]	Preinjury Industrial Category	Preinjury Mean Wage[1]	Preinjury Mean Hrs/Wk[1]	Preinjury Employment Ratio[2]	Postinjury Jobs	Postinjury Industrial Category	Postinjury Mean Wage[3]	Postinjury Mean Hrs/Wk[3]	Postinjury Employment Ratio[2]	Supported Employment Jobs	Supported Employment Industrial Category	Supported Employment Mean Wage	Supported Employment Mean Hrs/Wk	Supported Employment Employment Ratio[2]
1.	NA	NA	NA	NA	NA	14	Laborer	4.31	27.9	.7967	2[4]	Unskilled	4.40	30.5	1.0000
2.	2	Retail Sales	5.21	40	.7207	0	NA	NA	NA	.0000	2[4]	Food Service	3.98	20	.8213
3.	5	Retail Sales	4.18	24	.8710	2	Clerical	5.57	20	.1367	2[4]	Retail	4.15	22	.8555
4.	3	Clerical	5.07	18.7	1.0000	0	NA	NA	NA	.0000	1	Office Aide	5.16	30	1.0000
5.	3	Maintenance	5.08	40	.3566	0	NA	NA	NA	.0000	1	Office Worker	5.00	39	1.0000
6.	1	Sportswear	6.25	40	.4363	2	Clerical	3.35	40	.1310	1	Human Service	3.55	20	1.0000
7.	5	Retail Sales	6.12	34.4	.9747	0	NA	NA	NA	.0000	1	Office Aide	4.93	20	.2708
8.	1	Construction	5.00	40	1.0000	1	Workshop	.58	30	.1017	1	Warehouse	3.35	30	1.0000
9.	NA	NA	NA	NA	NA	3	Clerk	3.45	25	.4621	1	Warehouse	3.90	30	.2500
10.	2	Printing	3.50	38.5	.6286	1	Workshop	1.40	37	.5639	1	Maintenance	3.60	39	1.0000
11.	1	Stock Clerk	3.35	5	1.0000	0	NA	NA	NA	.0000	1	Bagger	3.75	25	.3333
12.	NA	NA	NA	NA	NA	3	Retail Sales	3.78	21.3	.2530	2[4]	Retail Sales	3.80	24	1.0000
13.	3	Construction	5.67	40	1.0000	2	Custodial	2.19	18.4	.2587	1	Retail Sales	3.60	40	1.0000
14.	1	Human Service	2.81	40	1.0000	0	NA	NA	NA	.0000	1	Human Service	4.00	15	1.0000
15.	NA	NA	NA	NA	NA	17	Food Service	3.42	27	.8287	1	Food Service	4.50	40	1.0000
16.	3	Food Service	4.15	40	.6098	1	Food Service	4.50	40	.5000	1	Food Service	4.50	40	1.0000
17.	1	Construction	3.35	40	1.0000	1	Food Service	3.35	25	.0187	1	Unskilled	4.50	25	1.0000
18.	NA	NA	NA	NA	NA	0	NA	NA	NA	.0000	1	Food Service	4.05	32	1.0000
19.	1	Commercial	11.45	40	1.0000	1	Recreation	4.00	18	.2857	1	Commercial	11.45	25	1.0000
20.	3	Construction	5.50	40	1.0000	1	Construction	5.00	30	.1818	1	Maintenance	4.15	38	1.0000
Means =	2.3		5.11	34.7	.8398	2.5		3.45	27.7	.2245	1.2		4.52	29.2	.8765
S.D. =	1.4		2.05	10.5	.2287	4.6		1.39	7.6	.2687	.37		1.70	8.0	.2602

[1] Participants whose injuries occurred prior to their 20th birthday were coded NA, and not included in mean computation.
[2] Employment Ratio = Actual months employed during the period / potential months of employment.
[3] Participants who had no post-injury employment history were coded NA, and not included in mean computation.
[4] Jobs are concurrent.
[5] Jobs are sequential.

and were assigned monthly employment ratios of 1.0. This was the modal value for the preinjury employment ratio.

Postinjury work histories. Seven of the participants were unable to get any type of employment postinjury and therefore were not included in analyses of work hours or wages, but were assigned monthly employment ratios of zero. Three of the participants (cases #8, #10, & #13) had worked in sheltered workshops postinjury, accounting for their low mean hourly wages. Two participants (cases #1 and #15) had acquired and then separated from a considerable number of jobs (14 and 17, respectively), thus scoring relatively large monthly employment ratios but not exhibiting job stability.

Only one participant (case #16) was employed at the time that supported employment services began. She had returned to her preinjury job but was in danger of termination.

Supported employment. Twenty-four supported employment placements have been made for the 20 participants. Twelve (50%) are still in their first placement. Following termination of a first placement, two were placed into a second position, which they currently hold. Three individuals were discharged from the program following loss of first placement and one following loss of a second placement. One individual (case #1) has been placed into two concurrent jobs, both of which he maintains. A review of Figure 4 indicates the business supervisors, perceptions of the placed individuals. A mean score of 5 would indicate that the supervisor strongly agreed with statements related to positive work habits, i.e., attendance and attitude exhibited on the job. A mean score of 1 would indicate strong disagreement. Currently employed persons showed higher scores across the time intervals than those who have been separated from employment.

The mean number of hours per persons for supported employment intervention is 278 hours. This computes to a cost of $7,483 per placement at the state vocational rehabilitation negotiated rate of $26.92 per hour.

Statistical Analyses

One-way analysis of variance revealed no significant differences at the .05 alpha level in the number of jobs held ($F = 1.21$, $p = .3073$) or client work hours per

Figure 1

Average Hourly Wages

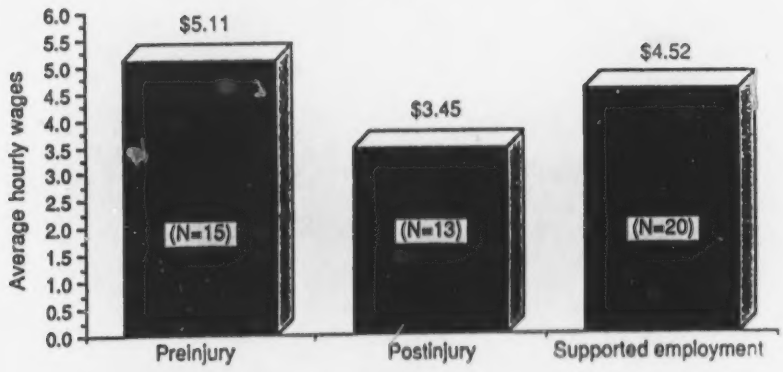


Figure 2

Average Hours Worked per Week

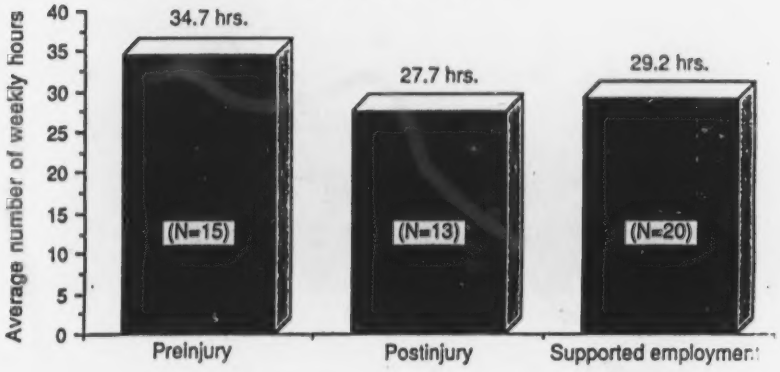


Figure 3

Mean Employment Ratios

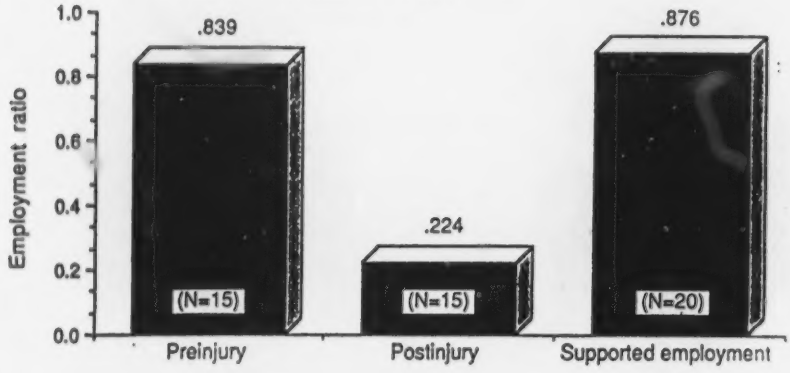
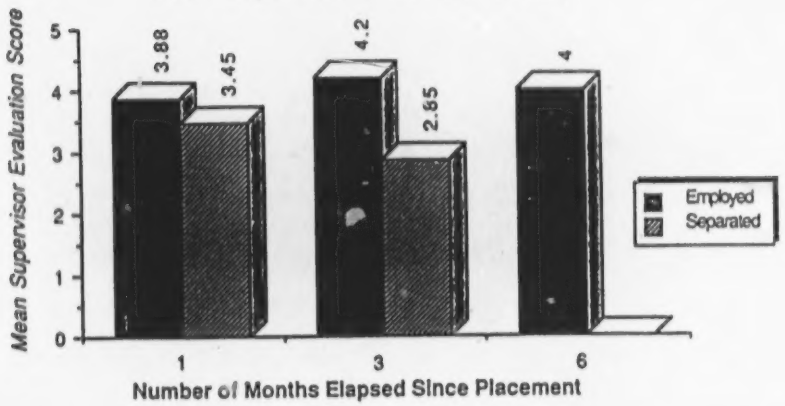


Figure 4

Mean Supervisor Evaluation Scores



week (F = 2.62, p = .0841) across the three phases of employment. Differences were found in hourly wages (F = 3.22, p = .0491) and employment ratios (F = 39.59, p < .0001). Scheffe multiple comparison procedures revealed that monthly employment ratios preinjury and during supported employment were comparable. The postinjury employment ratio was significantly different from both preinjury and supported employment ratios. Scheffe procedures also revealed that preinjury and postinjury wages were significantly different, but supported employment wages were not significantly different from either of these two phases. The results of the statistical analyses are summarized in Table 4.

Table 4

Summary of Statistical Analyses

	Analysis of Variance		Scheffe Groupings		
Variable	F-Value	p	Pre-Injury	Post-Injury	Supported Employment
Jobs	1.21	.3073	--	--	--
Work hours per week	2.62	.0841	--	--	--
Hourly wage	3.22	.0491*	A	B	A,B
Employment ratio	39.59	.0001*	A	B	A

* Statistical significance (x = .05)

Discussion

The purpose of this report has been to provide a prospective analysis of the impact of a supported employment program on the vocational outcomes of postacute traumatically brain injured (TBI) persons. Although descriptive and preliminary in nature, these data provide some evidence for considering the use of supported employment as a rehabilitation intervention. Work histories were reconstructed for preinjury and postinjury levels to the highest degree of accuracy that was possible. The outcomes which resulted from these occupational histories were then compared with supported employment outcomes. Salient measures of vocational success included wages earned, hours worked, total months of actual work performed, and consecutive months of employment. Also, supervisors at the business were regularly queried to assess their satisfaction with traumatically brain injured workers.

The data reported in this paper suggest that supported employment can help improve the vocational capacity of severely head injured individuals. All of these persons were consistently resistant to vocational placement and had been considered poor prospects for vocational rehabilitation. As noted in Figures 1-3, however, in most cases the placed group as an aggregate has been able to approach their collective preinjury level of vocational capacity. As noted earlier, a supported employment approach is especially useful in helping a person stay employed once a job is located. The data in Figure 3 related to months worked support this notion. Hence, not only has supported employment been helpful in facilitating work reentry, but individuals, for the most part, have returned to levels and stability of employment comparable to their preinjury status.

The overall positive reaction of employers in business and industry to the work habits and general work performances of the individuals employed is noteworthy. The comments on the supervisor evaluation sheets, as well as checked marks on the scale, support the positive view of employers (see Figure 4). While almost all TBI workers experienced significant problems at work at one time or the other, the presence of or access to a supported employment specialist seemed to be a major factor in promoting

job retention. Employers were quick to pick up the telephone and seek specialized intervention assistance from employment specialists.

There are at least two major methodological limitations to the present report. The first is that there was no randomized assignment of patients to a supported employment group and to an a priori control group. Obviously, this is a serious limitation which prevents inferences about the efficacy of supported employment. We do know, however, that most of the persons who were placed from the overall referral group were highly comparable in terms of age, severity of injury, post-acute status, neuropsychological status, and educational status. Furthermore, we also know that the placed persons actually served as their own controls during the postinjury phase and while they were on the waiting list for supported employment services.

The other major limitation in generalizing from present findings inherent in this report is that it only provides a "snapshot" in time of the effectiveness of supported employment. It was not the focus of this study to report in-depth cumulative data, costs, or benefits associated with this report.

Several concluding observations can be made about the vocational behavior of the individuals presented in this report. For the most part, each person exhibited at least serious cognitive dysfunction, psychiatric instability, or physical deficit while employed as well as prior to employment. These were problems which the employment specialist was faced with managing at the job site as they occurred. Some persons showed more than one of these categories of problems. Often they occurred as a result of a job change, change in management at the company, home difficulties, or away from work socialization problems. Such problems mandated an ongoing case management approach and also made imperative a willingness to provide intervention directly at the job site by the employment specialist. We believe that a team approach to problem-solving and planning is absolutely essential. The problems are so complex and multidimensional that frequent input from experts, with the overall case managed by the physician, is critical. It is clear to us that persons who have experienced severe head injury will probably need very structured job placement with access to a systematic and ongoing intervention as needed. There are a myriad of problems which are almost

continually present and which vary as a function of the type of work, social ecology of the workplace, and present home environment in which the person is living.

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Supported Employment: An Alternative Model for Vocational Rehabilitation of Persons with Severe Neurologic, Psychiatric, or Physical Disability

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Abstract

Participation in paid work in competitive industry through placement in supported employment is compared and analyzed for 278 persons with long-term mental illness, cerebral palsy, traumatic brain injury, or a dual diagnosis of chronic mental illness and mental retardation. Results indicate that supported employment appears to be an effective means of assisting these historically unemployable individuals with severe disabilities to acquire and retain work. Cross-disability group differences are found in areas such as hourly wages, type of employment, and job retention. Differences are also noted in the active time on the job site by the employment specialist with persons with traumatic brain injuries or dually diagnosed needing a comparatively higher level of training and behavioral intervention. Results represent a baseline from which to evaluate future efforts at competitive work placement through supported employment for persons with severe disabilities other than the mentally retarded.

Within recent years there has been significant attention to improving vocational outcomes for persons with severe disability (1-3). At one time in the not too distant past many persons with severe disability were considered unemployable. Vocational rehabilitation counselors and others viewed these people as lacking employment potential and subsequently no vocational services were provided. The group of people known as "the severely disabled" include, but are not limited to, people with severe cerebral palsy, severe head injury, long term or chronic mental illness, and severe mental retardation (1). Most these people receive transfer payments from the Social Security Administration.

The psychological as well as financial cost of having such a large group of people not working is substantial. Therefore, within the past five years we have begun to study how a model of supported employment might positively impact on the vocational outcome of people with very severe disabilities (4). Supported employment is a method of rehabilitation intervention which involves the use of a professional staff person, known commonly as a job coach, at a job site working side by side with the severely disabled worker. The job coach provides training, support and counseling to the client and business staff until the individual becomes more independent at which time the job coach reduces the frequency of involvement (5).

The supported employment approach has been used successfully for over 10 years now but primarily with persons who have mild and moderate levels of mental retardation (6-7). The data from this work indicate that persons with IQ between 40 and 70 can work competitively with support and additional analyses with persons with lower IQ's (0 to 40) also indicates some promise although less conclusively (8).

To this point, supported employment research has been primarily descriptive in nature and has not focused on cross-disability comparisons. Differential analyses of participants who are mentally retarded has dominated the literature. There is a need, however, to a) evaluate whether the supported employment model can also have efficacy with other difficult to place populations such as the traumatically brain injured or mentally ill, and b) to assess for differences across disabilities. Therefore, it is the

purpose of the present paper to provide outcome data which address the above two issues.

Method

The Employment Data Management System

The Virginia Commonwealth University Rehabilitation Research and Training Center on Supported Employment (VCU-RRTC) operates a comprehensive management information system designed to monitor the employment outcomes of targeted severely disabled workers from Virginia and a number of other states and localities. The Supported Employment Information System (SEIS) consists of client employment outcome data generated from 96 local programs through Virginia, North Dakota, and Nevada, as well as federally funded demonstration programs operated by the United Cerebral Palsy Association, VCU-RRTC and 6 school programs in California and Florida. As of March 31, 1989, the data base contains information on 1760 persons with disabilities placed in employment.

Overview of the Data Management Process and Equipment

The SEIS consists of over 200 data elements, organized into 9 data collection forms. The system provides detailed information on target employee demographic and functional characteristics, consumer assessment information, the results of job analyses, comprehensive data on the type of job performed by the employee, the amount and type of services provided by the supported employment program, supervisors' evaluations of the target employees' work performance, and complete information regarding employment retention and reasons for job separation. Some data elements are collected one time only, others are collected on regular 3 or 6 month intervals, and still others are collected on a continuous, daily basis.

Data forms are submitted on a prescribed schedule and a data management specialist reviews each form for completeness, accuracy, and consistency with previously submitted data. Data are entered through a terminal based computer system utilizing an IBM 3081K mainframe. Following data entry and analysis at VCU, summary reports are then returned to state agencies and local supported employment service programs on a quarterly and monthly basis. All SEIS participants receive aggregated statewide

reports that contain both numerical tables and graphic depictions of data. All quarterly reports contain complete information on the immediate quarter, as well as cumulative information, to allow managers to monitor the results and growth of an individual program over time.

Nature of All Clients in Data Base

The 1760 clients placed into supported employment that make up the data base have a variety of primary disabilities. The overwhelming majority of individuals (77.2%) are diagnosed as mentally retarded (MR), 10.7% are individuals with chronic mental illness or other emotional disorders, and the remaining 12.1% are persons with other primary identified disabilities. Of the persons with mental retardation as either a primary or secondary disability, 9.4% are in severe/profound MR (IQ<35) category, 33.1% moderate MR, 44.4% mild MR, and 13.1% borderline MR. Fifty-seven percent of the individuals are males with individuals from identified minority groups making up 27% of the population. The mean age of persons in the data base working as of March 31, 1989 is 31.4 years.

As noted earlier, supported employment is clearly intended for persons who have previously had expressed difficulty in obtaining and maintaining competitive employment. The previous employment histories of 1,411 individuals in the data base were recently examined (9) and are presented in Table 1. For example, 43% of the individuals reported no earnings in the year prior to referral for supported employment. The average wage earned in the previous year was $1.655 for the 57% of the persons' who did earn wages. Those not earning wages include persons who entered supported employment directly from secondary special education programs, persons on waiting lists and previously unserved persons in adult activity centers with no paid work opportunities, or persons institutionalized or hospitalized immediately prior to entering supported employment.

Demographic Characteristics of Clients in Present Study

The study that follows examines a sub-set of 278 persons placed in supported employment. These are individuals with chronic mental illness (CMI), cerebral palsy (CP), traumatic brain injury (TBI), or a dual diagnosis of chronic mental illness and

Table 1

Previous Employment History of All Clients in Data Base
(N = 1,411)

Salary in Year Prior to Supported Employment	
Percentage of individuals reporting no earned wages in year prior to supported employment	43.0%
Average wages earned by consumers who reproted earnings in year prior to supported employment	$1,655
Adult Activity Center Attendance	
Percentage of individuals who had previously attended an adult day center program	24.1%
Average length of adult day program	35 months
Sheltered Workshop Attendance	
Percentage of individuals who had previously attended a sheltered workshop	52.1%
Average length of sheltered workshop attendance	44 months
Community-Based Work Experience	
Percentage of individuals with previous community-based work experience	36.1%
Average length of competitive employment experience	31 months

mental retardation (MR/CMI). Tables 2 and 3 provide age and descriptive characteristics of this group. Over 60% of all persons lived in supported or dependent residential arrangements such as with their parents or group homes. It should be noted that this group of people have had little or no competitive employment history and have shown themselves to be extremely resistant to job placement using traditional types of vocational rehabilitation. The mean length of coma for persons with traumatic brain injuries in the referral pool for placement is 55 days. At referral, federal disability income benefits were received by a range by disability group of from 41.2% for the CMI population to 92.5% for the cerebral palsy population.

Nature of Supported Employment Model

Over 90% of the clients in this study received the individual placement model of supported employment. This model utilizes an employment specialist as job coach to provide structured job placement services and highly individual and intensive training at the job site. The unique feature of supported employment is that the focus of vocational intervention e.g. training, counseling and support occurs at the job site while the person is employed. Most of these clients fail because of their inability to

Table 2

Client Age as of March 31, 1989

	Chronic Mental Illness	Cerebral Palsy	MR/ Chronic Mental Illness	Traumatic Brain Injury
Number of Clients Referred as of 3/31/89	233	124	53	104
Mean Average Age at Referral	34.7	30.7	32.4	30.0
Age Range at Referral	17-67	18-67	18-56	17-58
Number of Clients Working as of 3/31/89	85	37	23	23
Mean Average Age of Clients Working	35.1	30.1	33.0	30.4
Age Range of Clients Working	21-60	18-47	21-48	23-46

Table 3

Physical Impairment Characteristics of Persons Referred for Supported Employment as Recorded by Employment Specialists

Ambulation	Total Percent Cerebral Palsy	Total Percent Traumatic Brain Injury
No impairment	5.7	46.5
Unsteady gait	35.2	30.3
Aides/Independent	18.9	13.1
Wheelchair/Independent	20.5	6.1
Aides/Assistance	0.8	0.0
Wheelchair/Assistance	18.9	4.0
	100.0	100.0
Sight Impairments		
No impairment	90.2	73.3
Visually impaired	8.2	24.8
Blind	1.6	2.0
	100.0	100.0
Motor-fine-Impairments		
No impairment	20.8	73.3
Both hands somewhat	34.2	13.4
Right hand somewhat	10.0	7.2
Left hand somewhat	8.3	19.6
Both hands severe	19.2	5.2
Right hand severe	3.3	6.2
Left hand severe	4.2	7.2
	100.0	100.0

generalize or retain skills as well as major social, behavior and physical problems. A supported employment specialist provides intervention based on the job requirements and challenges presented by the clients. A team approach is used with occupational

physical therapists, social workers, physicians and psychologists helping in the planning process. The employment specialist spends reduced time at the job site based on client work performance data and biweekly reports from the business supervisor.

Results

The following sections provide descriptive analyses of a number of salient employment outcomes for the 278 persons studied.

Placement Outcomes

As Table 4 indicates, a combined total of 168 persons across the four disability groups were working in supported employment as of March 31, 1989. There were 349 placements made to date of the 278 individuals with some persons receiving replacement assistance. A total of $1,048,881 in wages have been earned cumulatively by persons in these 349 placements, ranging from $143,870 for persons dually diagnosed as mentally retarded and chronically mentally ill to $517,808 for persons with chronic mental illness. These wages were earned in competitive employment by persons who for the most part had a limited to non-existent recent work history.

Table 4

Placement Outcomes as of March 31, 1989

	Chronic Mental Illness	Cerebral Palsy	MR/ Chronic Mental Illness	Traumatic Brain Injury
Employed in Job as of 3/31/89	85	37	23	23
Placements (Cumulative)	205	51	46	47
Working in Jobs (Cumulative	157	47	31	43
Mean Hourly Wage	$4.10	$4.66	$3.75	$4.45
Mean Hours Work per Week	22	35	37	32
Gross Wages (Cumulative)	$517,808	$179,394	$143,870	$207,809

A primary indicator of effort and time spent on the job placement and retention of the persons working is the cumulative recording of intervention hours spent by staff. In Table 5 the hours and percent of time of staff intervention are presented. The level of interventions by category varies across the four disability groups. The highest

percent of time, ranging from approximately one-third to one-half of the intervention time of the employment specialist, involved actively training the individual with a disability at the job site. The "Inactive Time on Job Site" category represents time spent at the job site by the employment specialist between periods of active involvement or observation with the client. Comparatively high amounts of time are also spent by the employment specialist in direct employment advocacy with job site personnel including employers, co-workers and supervisors. Persons with traumatic brain injury or cerebral palsy have a noticeably higher mean intervention time than the CMI or MR/CMI dually diagnosed population.

Table 5

Staff Intervention Hours Provided by Category
Cumulative as of March 31, 1989

Intervention Time Category	Chronic Mental Illness Hours/Percent	Cerebral Palsy Hours/Percent	MR/ Chronic Mental Illness Hours/Percent	Traumatic Brain Injury Hours/Percent
Active Time on Job Site	3493 (33.4)	3015 (30.3)	2831 (53.8)	4662 (44.4)
Inactive Time on Job Site	935 (8.9)	439 (4.4)	610 (11.6)	1446 (13.8)
Travel and Transport Time	1474 (14.1)	1317 (13.2)	555 (10.5)	1428 (13.6)
Consumer Training Time	1180 (11.3)	303 (3.1)	330 (6.3)	381 (3.6)
Consumer Program Development	324 (3.1)	701 (7.1)	92 (1.7)	567 (5.4)
Direct Employment Advocacy	1587 (15.2)	2384 (24.0)	401 (7.6)	892 (8.5)
Indirect Employment Advocacy	1038 (9.9)	856 (8.6)	172 (3.3)	607 (5.8)
Consumer Screening and Evaluation	426 (4.1)	930 (9.4)	275 (5.2)	509 (4.9)
Total	10457 (100%)	9948 (100%)	5267 (100%)	10495 (100%)

The type of work is reflected in Table 6. The food services and janitorial/custodial areas are the largest sources of employment for the LMI (56.6%) and MR/CMI (78.6%) populations. Clerical/office work provides the largest source of employment for both the TBI (37.0%) and CP (49.0%) populations. Sick leave fringe

benefits were secured for 31% to 42.2% of the disability category; similar levels were obtained in paid vacation and medical insurance.

Table 6

Type of Work

Type of Work	Chronic Mental Illness (N = 205)	Cerebral Palsy (N = 51)	MR/ Chronic Mental Illness (N = 46)	Traumatic Brain Injury (N = 46)
Food Services	29.8%	21.6%	28.3%	13.0%
Janitorial/Custodial	26.8%	7.8%	50.0%	21.7%
Unskilled Labor	1.5%	0.0%	0.0%	4.3%
Bench Work/Assembly	4.9%	5.9%	13.0%	0.0%
Laundry	1.5%	2.0%	0.0%	0.0%
Stock Clerk/ Warehouse	12.2%	9.8%	2.2%	15.2%
Transportation	2.0%	0.0%	2.2%	0.0%
Clerical/Office	13.7%	49.0%	2.2%	37.0%
Groundskeeping	3.4%	2.0%	2.2%	2.2%
Human Service	4.4%	2.0%	0.0%	6.5%
Total	100.0%	100.0%	100.0%	100.0%

Table 7 shows the specific reasons why separations from employment took place. It is important to note that job separations because of employer initiated terminations, as compared to resignations or lay offs, occurred with noticeably more frequency (52.4%) for persons with traumatic brain injuries than with persons in the other three disability groups. Table 7 shows the large number of reasons given for separations, with the leading reasons being medical health problems, taking a better job, and not wanting to work.

Table 8 shows the percent of persons by disability who were employed in an initial or subsequent job for the indicated number of months after placement. The percent of persons employed twelve months after initial placement in supported employment ranged from 59.6% for the CMI population to 93.3% for the MR/CMI dully diagnosed population.

Table 7

Reason for Separation from Employment

Type of Work	Chronic Mental Illness	Cerebral Palsy	MR/ Chronic Mental Illness	Traumatic Brain Injury
Transportation problem	3.0%	0.0%	0.0%	0.0%
Does not want to work	11.9%	15.4%	6.3%	9.5%
Took better job	12.9%	7.7%	18.8%	0.0%
Economic situation	5.0%	7.7%	12.5%	9.5%
Medical health problem	14.9%	15.4%	6.3%	28.6%
Slow work	5.0%	7.7%	6.3%	0.0%
Low quality work	5.9%	7.7%	0.0%	4.8%
Poor social skills	0.0%	0.0%	0.0%	9.8%
Poor attendance/ tardy	7.9%	0.0%	0.0%	9.5%
Insubordinate behavior	2.0%	0.0%	6.3%	14.3%
Aberrant behavior	4.0%	0.0%	0.0%	4.8%
Parental interference	0.0%	7.7%	0.0%	0.0%
Poor work attitude	4.0%	7.7%	0.0%	4.8%
Employer uncomfortable	2.0%	7.7%	6.3%	0.0%
Poor job match	9.9%	0.0%	18.8%	4.8%
Seasonal lay off	4.0%	7.7%	0.0%	0.0%
Other reasons	5.9%	7.7%	18.8%	4.8%

Table 8

Employment Retention at Various Times After Placement

Disability Groups	3 months N	3 months %	6 months N	6 months %	9 months N	9 months %	12 months N	12 months %
MR/Chronic Mental Illness	28	89.3	27	77.8	23	82.7	15	93.3
Traumatic Brain Injury	34	82.4	27	59.3	20	55.0	16	62.5
Cerebral Palsy	42	83.3	32	81.3	24	87.5	15	80.0
Chronic Mental Illness	130	69.2	99	66.7	75	64.0	47	59.0

* The N represents the total number of persons (a) in employment or (b) in the referral pool for replacement or discharged from the program after separation from employment. The % represents the percentage of the N in employment.

Discussion

The implications of this descriptive analysis give reason to be cautiously optimistic that some persons with severe disabilities who have traditionally been unemployable may be able to work with supported employment. The results of this study were not experimentally controlled and are therefore subject to obvious methodological problems, not the least of which is subject selection bias by participating programs. Participating clients were selected for placement by many programs not necessarily on a basis of ability but instead family support, transportation availability, willingness to take a less desirable job, or willingness to risk loss of Social Security payments. Furthermore, in different regions of the country the local economic conditions vary markedly making uniform evaluation of program success very difficult.

Nevertheless the persons who are presented as working have one major attribute in common: historically, they have been considered by the rehabilitation system as unemployable. Their preplacement work history clearly supports this perception with the mean salary being less then $1700 per year per person. Hence the first finding of this study is that supported employment appears to be an effective means of helping people with severe disability go to work. The lack of a randomized control group does makes it impossible, however, to conclude that supported employment was the reason for these persons working competitively.

Several points can be made initially about the placement outcomes. First, it is interesting to note that for the cerebral palsy and brain injured populations the number of placements matches closely with the cumulative number of persons working. However, the mentally ill and dually diagnosed group has a higher ratio of replacements to persons working. Second, the dually diagnosed and brain injured require a comparatively higher level of active time on the job site. This is perhaps reflective of the significant training and behavioral intervention this group usually requires. Third, persons with more intellectual capacity i.e. cerebral palsy, and the brain injured earned more hourly with wages of $4.66 and $4.45 per hour. Undoubtedly, these wages also reflect jobs in industries other than food service and custodial work. Clerical and office work predominated for individuals with cerebral palsy and brain injury. Hours worked

per week ranged from 26 to 29. The amount of hours these groups worked is encouraging since a criticism of supported employment is that too many low hour jobs without benefits have been the outcome (10).

A careful look at Table 7 on reasons for separation from employment indicates that all groups had to stop work due to medical and/or health problems especially those without mental retardation. Insubordinate behavior, tardiness, and also not wishing to work were major reasons for separation for the traumatically brain injured group. Interestingly, those with mental illness, cerebral palsy and brain injury all indicated a lack of desire to work; this perhaps reflects either a poor choice jobs for them or fear of loss of Social Security or insurance payments. Transportation, which is often cited as a barrier to employment, was not one for these 4 groups of severely disabled people.

In Table 8 is listed 3, 6, 9, and 12 month job retention. The relatively disappointing retention of the traumatically brain injured (62.5%) and long term mentally ill (59%) is not surprising given the predisposition toward psychiatric and behavior problems of these two groups. Within the dually diagnosed group, it appears that the mental retardation aspect of the diagnosis influences retention which was over 93% at 12 months.

In summary, there are three major caveats which must be remembered in interpreting these results. They are: 1) potential subject selection bias exists by programs in the client selection procedure 2) lack of a control group reduces the ability to indicate that supported employment was the case of these persons getting employed and 3) the relatively small size of the N. We believe, however, that this report provides an important benchmark or baseline from which to evaluate future efforts at vocational rehabilitation and job placement of persons with severe disability and who have no appreciable work history. It would appear that these groups can work competitively with job coach help, that persons with cerebral palsy and brain injury work in somewhat higher paying jobs, and that job retention is better by persons with cerebral palsy and mental retardation/mental illness. In order to reduce job separations for brain injured and the mentally ill, it is probable that closer liaison with the physician is necessary.

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Fringe Benefits Earned by Supported Employment Participants

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Abstract

The fringe benefits received by individuals engaged in supported employment were examined. Frequency tables and chi-square statistics were computed for benefits received by participants from various disability groups served in individual and group employment models. The effects of part-time and full-time employment on benefits were controlled by separate analyses for these subsamples. Results indicated that 64% of supported employees received fringe benefits, with individuals classified as severely or profoundly retarded least likely to receive benefits and those with long-term mental illness and physical/sensory disabilities most likely. Significant differences were found in the availability of particular benefits across disability categories and across employment models. Of particular interest is medical/health insurance coverage, which was available far more frequently to persons in individual placement models. However, full-time employment status appeared to be the single best indicator of the availability of most fringe benefits.

Fringe Benefits Earned by Supported Employment Participants

The availability of employee fringe benefits to supplement earnings is an important factor in bringing persons with disabilities into the work force and determining appropriate job placements, particularly for individuals with physical or medical impairments which require ongoing treatment (Revell, 1982). Individuals are often unable to earn sufficient income to offset the loss of cash subsidies, medical coverage, food stamps, housing assistance, and other government entitlements (Hommerztheim & Schuermann, 1980; Wall, Masson, & Werner, 1977). Medical insurance coverage appears to be the most critical benefit that the majority of workers with disabilities will require (e.g., Conley, Noble, & Elder, 1986; Kleman & Brinkman, 1988), but paid vacation and sick leave, employee discounts, meals, and other benefits will all contribute to long-term employment security and satisfaction.

Planning employment entry for persons with disabilities requires careful consideration of the types of government supports an individual receives, the employment incentives which are available, the types of fringe benefits which are available, and the need for ongoing program support. The need for planning is particularly acute for individuals with severe lifelong disabilities who are entering or re-entering the job market through a program of supported employment (Szymanski, 1988). Supported employment is defined as competitive work for at least 20 hours per week in integrated work settings, with the provision of ongoing skills training and support services. Supported employment also includes transitional employment services for individuals with chronic mental illness (Federal Register, 1987, August 14).

Supported employment has been described in the rehabilitation literature as a number of program models which may be broadly classified as either individual placement (supported competitive employment, or the job coach model, and supported jobs) or small group placement (enclave, mobile work crew, and small business). The individual placement model has been previously described by Wehman and Kregel (1985) and Moon and Griffin (1988), and variations on small group models are presented by Mank, Rhodes, and Bellamy (1986) and Moon and Griffin (1988). While

variations on both individual and group placements all possess unique characteristics (see Table 1), they share common goals of providing individuals with severe handicaps the opportunity for physical and social integration with nonhandicapped coworkers, and meaningful work for competitive or commensurate wages (Bellamy, Rhodes, & Albin, 1986; Wehman & Moon, 1985). Individual and group models, however, have differed in the extent to which they enable consumers to achieve these goals. For example, Kregel, Wehman, and Banks (1989), utilizing the same data base as the current study, found that persons placed using the individual placement model earned significantly higher hourly wages and had a higher mean integration rating than persons placed in group models.

Table 1

Characteristics of Program Models

	Program Model	Characteristics	Employed By	Supervised By	Client Earnings
Individual Placement	Supported Competitive Employment	Employment specialist provides time-limited training and ongoing follow-along and support services	Place of work	Employer or company supervisor	At least minimum wage
	Supported Jobs	Same as above	Same as above	Same as above	Based on productivity. Subminimum possible
Group Placement	Enclave	Up to 8 workers filling one or multiple positions within a host company with ongoing support	Either worksite or placement agency	Either worksite or placement agency	Based on productivity. Subminimum possible
	Mobile Work Crew	Up to 8 workers typically filling one position or role in multiple companies, ongoing support	Typically the placement agency	Typically the placement agency	Based on productivity. Subminimum possible
	Small Business	Small, single-purpose manufacturing or subcontracting business employing workers both with and without disabilities	Placement agency	Placement agency	Based on productivity. Subminimum possible

A number of recent studies have assessed the net financial impact of supported employment on program participants (e.g., Hill et al., 1987; Hill, Metzler, Banks, & Handrich, 1987; Tines, Rusch, McCaughrin, & Conley, 1988). One finding common to these studies is that income derived from supported employment sufficiently offsets losses of medical and income supports and other government entitlements. These studies, however, have some limitations in regard to supported employee benefits. First, only workers in individual placement models have been included. Analyses of outcomes for employees in group programs (i.e., Mank et al., 1986; Rhodes & Valenta, 1985) have not examined net financial gain or loss as a result of supported employment. Second, in most analyses fringe benefits have either been assigned an estimated dollar

amount or ignored, rather than delineated. Thus, information on benefits available to supported employment participants is limited.

The purpose of the present study was to examine fringe benefits received by supported employment participants across program models and across disability categories. Specifically, the following questions were addressed:

1. What fringe benefits do participants of supported employment programs receive?
2. Is employee disability category related to fringe benefits received?
3. Is type of supported employment model related to fringe benefits received?

Method

Sample

The Rehabilitation Research and Training Center on Supported Employment (RRTC) at Virginia Commonwealth University tracks supported employment participants served by 96 provider agencies in eight states. These provider agencies submit data to the RRTC for state or national supported employment program evaluation contracts. The sample of participants for this analysis consisted of 1,550 placed individuals for whom information was available regarding disability, placement model, and employee benefits. Demographic characteristics of individuals in the RRTC data base have been described by Kregel & Wehman (in press). Briefly, approximately 64% of these individuals had a primary or secondary disability of mild or moderate mental retardation, with approximately 8% classified as severely or profoundly mentally retarded and another 9% borderline mentally retarded. Approximately 9% of the participants had a primary diagnosis of long-term mental illness. The remaining 10% had other disabling conditions, primarily traumatic brain injury and cerebral palsy. The majority of these individuals were placed into food service positions (37%), janitorial or custodial positions (31.2%), and stock clerk/warehouse positions (9.7%), with other types of placements, in order of frequency, in clerical, benchwork, laundry, groundskeeping, unskilled labor, and human service positions (RRTC, 1989).

Approximately 78% of the sample were placed under the individual placement model and the remainder under group models. A cross-tabulation of the sample by

disability status and employment model presented in Table 2 shows that persons with severe or profound mental retardation are more likely to be placed in enclaves and less likely to be served in individual placements than their counterparts with other disabling conditions or level of severity. Nonetheless, the majority of these individuals (64.4%) were placed using the individual placement model. Individuals with moderate mental retardation, long-term mental illness, and physical/sensory disabilities are less likely to be placed in the small business variation of the group placement model (Kregel, Wehman, & Banks, 1989).

Table 2

Percentages of Individuals by Supported Employment Model

Type of Model	Severe/ Profound Mental Retardation (n = 127)	Moderate Mental Retardation (n = 424)	Mild Mental Retardation (n = 561)	Borderline Mental Retardation (n = 143)	Long-Term Mental Illness (n = 158)	Physical/ Sensory Disabilities (n = 137)
Individual (n=1215)	64.4%	82.7%	74.4%	78.1%	93.4%	87.6%
Enclave (n=145)	22.6%	8.0%	9.5%	6.3%	0.0%	4.4%
Work Crew (n=132)	6.1%	8.3%	10.3%	7.1%	3.3%	4.4%
Small Business (n=158)	6.9%	1.0%	5.8%	8.5%	3.3%	3.6%

Instrumentation

The Supported Employment Management Information System is an individual consumer tracking system consisting of 243 distinct data elements collected regularly throughout each participant's employment experience. Job coaches or group supervisors within contracting provider agencies complete forms which provide information in such areas as consumer demographics, previous work and adult service histories, outcomes of supported employment, and the amount and type of service provided to the consumer by agency staff.

The present analysis focused on data obtained from the Job Screening Form, which is completed at the time of job placement. This form summarizes the results of job analysis activities performed by the job coach or the group supervisor. It provides specific information on key aspects of an employment setting, such as the type of employment model, hourly wage, work hours per week, functional characteristics of the

job, fringe benefits provided, and the opportunity for physical and social integration for individuals in the position.

Fringe benefits are recorded by a forced choice yes/no response to the following items:

None (with "yes" indicating that no benefits are available)

Sick leave

Medical/health benefits

Paid vacation/annual leave

Dental benefits

Employee discounts

Free or reduced meals

Other (specify)

Job coaches and group supervisors are instructed to identify fringe benefits available to the employee, not just those which the employee chooses to utilize. Fringe benefits are collected throughout the work history of the employee; however, only those benefits known to be available from the initiation of employment were examined in this study.

Procedure

Data verification. A multi-step procedure is employed to insure that data submitted to the RRTC is accurate. First, agency personnel receive training in the use of the data management forms by either RRTC staff or state project personnel who are familiar with the form set. A Data Management System Operations Manual (RRTC, 1987), which provides detailed instructions for form completion, is also disseminated to each provider agency. Submitted forms are reviewed by a Data Management Specialist who checks forms for completeness and congruence with previously submitted data for the particular consumer. An error-checking procedure within the data entry program also identifies inconsistent or out-of-range data. Missing or conflicting information is corrected via telephone contact with the agency personnel. Finally, telephone

consultation is available and encouraged should agency personnel have questions regarding form completion.

Variables. The dependent variable examined was the presence or absence of fringe benefits provided to the employee. The independent variables were (a) the disability status of the employee, categorized as severe/profound, moderate, mild, or borderline mental retardation, long-term mental illness, or physical/sensory disabilities; and (b) the type of employment model through which the employee was placed. The percentage of "yes" responses to each item was computed for the entire sample, and then across disability categories and specific employment models.

Statistical analysis. To determine the relationship between the independent and dependent variables, cross-tabulations and chi-square analyses were conducted using the Statistical Analysis System computer program (SAS Institute, 1985). Cross-tabulations using all group model variations revealed a number of tables with an unacceptable number of cell frequencies less than five. Therefore, for purposes of statistical testing participants in all variations of the group placement model were collapsed into a single category. Where significant relationships were found, the cell chi-square values were examined to determine which frequencies were significantly greater or less than expected. A preliminary analysis revealed that availability of benefits was related to full-time status, x^2 (1, N = 1366) = 44.52, $p < .001$. Thus, two sets of analyses were conducted, one for part-time workers and the other for full-time workers. The Bureau of Labor Statistics' criterion of 35 hours per week for full-time employment (U.S. Department of Labor, 1985, June) was used to differentiate between full-time and part-time employment.

Two potentially confounding variables not examined in this study are the types of positions held by supported employees and the size of the companies in which they are employed. These variables have been known to affect the availability of fringe benefits within the general labor force (U.S. Department of Labor, 1987, June). However, practically all of the group model participants within the RRTC data base are employees of the placement agency rather than the host company. Therefore, the placement agency, not the size of the host company or the positions that group

members fill there, determines the benefits which are available to those workers. Thus, for the purposes of this analysis company size and supported employee positions are irrelevant variables.

Results

What Benefits do Supported Employees Receive?

Tables 3 and 4 show the prevalence of benefits for the total sample and across disability categories and employment models. Overall, 64% of the sample received one or more fringe benefits. The benefit most frequently indicated as received was vacation/annual leave (45.6%) and dental benefits were least frequently indicated (10.4%).

Table 2

Availability of Fringe Benefits to Supported Employees

Benefit	Total Sample (n=1,550)	Part-Time Workers (n=1,114)	Full-Time Workers (n=436)
None	36.0%	41.5%	22.3%
Sick leave	34.0%	24.6%	55.9%
Medical/health benefits	33.2%	21.7%	59.9%
Vacation/annual leave	45.6%	33.4%	73.5%
Dental benefits	10.4%	6.6%	20.3%
Employee discounts	22.5%	20.7%	27.0%
Free/reduced meals	35.5%	36.8%	31.9%
Other	18.5%	13.9%	32.2%

Table 3

Fringe Benefits Received by Supported Employees Across Employment Models

Benefit	Small Business (n=58)	Mobile Work Crew (n=132)	Enclave (n=145)	Individual Placement (n=1,215)
None	94.4%	28.8%	32.6%	35.3%
Sick leave	6.9%	59.7%	37.5%	31.1%
Medical/health benefits	6.9%	18.6%	36.4%	35.4%
Vacation/annual leave	6.9%	62.9%	55.0%	43.5%
Dental benefits	0%	8.9%	10.9%	10.8%
Employee discounts	0%	1.6%	20.2%	26.4%
Free/reduced meals	0%	4.9%	23.9%	41.7%
Other	3.6%	24.0%	19.8%	18.2%

Table 4

Percentages of Individuals Receiving Benefits Across Individual and Group Employment Models (Part-Time and Full-Time Employees)

Benefit	Part-Time Only: Individual Placement (n=867)	Part-Time Only: Group Models (n=247)	Full-Time Only: Individual Placement (n=348)	Full-Time Only: Group Models (n=88)
None	40.0%	46.9%	23.6%	17.3%
Sick leave	20.7%	38.3%[a]	55.1%	58.8%
Medical/health benefits	21.3%	23.0%	67.1%	29.2%[e]
Vacation/annual leave	30.0%	45.6%[b]	73.7%	72.5%
Dental benefits	6.6%	6.8%	22.0%	14.1%
Employee discounts	25.4%	4.7%[c]	28.9%	21.3%
Free/reduced meals	43.5%	12.4%[d]	36.9%	12.1%[f]
Other	15.0%	10.5%	27.8%	45.6%[g]

Note: Subjects designated as full-time work a minimum of 35 hours per week.

[a] $X^2(1,878) = 25.18$, $p < .0001$
[b] $X^2(1,890) = 16.57$, $p < .0001$
[c] $X^2(1,847) = 38.30$, $p < .0001$
[d] $X^2(1,897) = 62.72$, $p < .0001$
[e] $X^2(1,379) = 34.94$, $p < .0001$
[f] $X^2(1,326) = 14.90$, $p < .0001$
[g] $X^2(1,230) = 6.27$, $p = .012$

Do Individuals in Various Disability Categories Receive Similar Benefits?

Fringe benefit availability appears to be associated with disability category of supported employees. Table 5 summarizes fringe benefits for part-time and full-time workers in various disability categories. For part-time workers, significant relationships were found between disability category and receipt of the following fringe benefits: sick leave, $x^2(5,N=878) = 19.65$, $p = .001$; medical/health benefits, $x^2(5,N=880) = 13.70$, $p = .018$; and vacation/annual leave, $x^2(5, N=890) = 12.58$, $p = .028$. An examination of the cell frequencies and percentages revealed that a smaller percentage of individuals with severe or profound mental retardation received sick leave and medical/health benefits, and higher percentages of individuals with long-term mental illness and physical/sensory impairments received these benefits. Higher percentages of these latter groups also received vacation/annual leave, and smaller percentages of individuals with borderline mental retardation received these benefits.

Table 5

Percentages of Individuals Receiving Fringe Benefits Across Disability Categories (Part-Time and Full-Time Employees)

	Part-Time Employees Only						Full-Time Employees Only					
Benefit	Severe/Profound Retardation (n=113)	Moderate Retardation (n=302)	Mild Retardation (n=410)	Borderline Retardation (n=95)	Long-Term Mental Illness (n=111)	Physical/Sensory Disabilities (n=83)	Severe/Profound Retardation (n=14)	Moderate Retardation (n=122)	Mild Retardation (n=151)	Borderline Retardation (n=48)	Long-Term Mental Illness (n=47)	Physical/Sensory Disabilities (n=54)
None	51.0%	41.3%	40.1%	47.4%	33.6%	41.1%	35.7%	17.6%	26.0%	20.0%	24.4%	19.0%
Sick leave	13.3%	27.1%	22.4%	15.9%	34.1%	37.3%[a]	35.4%	60.4%	53.9%	59.5%	48.8%	58.3%
Medical/health benefits	13.4%	23.8%	19.8%	14.3%	31.5%	29.3%[b]	50.0%	62.5%	53.0%	73.0%	56.8%	66.0%
Vacation/annual leave	28.6%	33.1%	31.0%	28.4%	45.7%	44.1%[c]	50.3%	77.3%	69.9%	78.6%	69.8%	80.0%
Dental benefits	7.4%	5.9%	7.6%	2.8%	5.9%	9.1%	11.1%	22.1%	14.2%	32.4%	13.2%	31.7%[d]
Employee discounts	13.8%	19.0%	21.2%	25.0%	24.1%	25.8%	11.1%	23.8%	24.6%	37.1%	27.3%	34.0%
Free/reduced meals	38.7%	32.2%	41.2%	35.2%	37.2%	33.3%	33.3%	37.7%	33.0%	27.3%	29.0%	21.4%
Other	4.3%	18.3%	14.6%	13.7%	12.1%	18.4%	33.3%	37.5%	27.1%	26.9%	40.9%	33.3%

Note: Subjects designated as full-time work a minimum of 35 hours per week.

[a] $x^2(5,878) = 19.65$, $p = .001$

[b] $x^2(5,880) = 13.70$, $p = .018$

[c] $x^2(5,890) = 12.58$, $p = .028$

[d] $x^2(5,321) = 10.84$, $p = .055$

For participants working full-time, a marginally significant relationship was found, for dental benefits, $x^2(5,N=321) = 10.84$, $p = .055$. Supported employment participants with borderline mental retardation and physical/sensory impairments received dental benefits with a greater frequency than other groups, and participants with mild mental retardation received dental benefits with a less frequency. Given the number of cross-tabulations computed and the likelihood of spurious relationships, this finding is questionable.

Do Supported Employees in Individual and Group Employment Models Receive Similar Benefits?

The availability of fringe benefits also appears to be related to employment model, with individuals in the small business model least likely to receive benefits (5.6%). Otherwise, frequencies across models produced mixed results. Individuals in

mobile work crews received sick leave (59.7%), vacation/annual leave (62.9%), and other benefits (24%) with a greater frequency than individuals in other program models; enclave workers earned medical/health benefits (36.4%) and dental benefits (10.9%) with a greater frequency; and persons in individual placement received employee discounts (26.4%) and free/reduced meals (41.7%) with a greater frequency.

Table 6 shows the frequencies with which benefits were earned by part-time and full-time supported employees in individual placement and group models. For part-time workers, a significant relationship was found between supported employment model and receipt of the following benefits: sick leave, $x^2(1,N=878) = 25.18$, $p < .0001$; and vacation/annual leave; $x^2(1,N=890) = 16.57$, $p < .0001$; employee discounts, $x^2(1,N=847) = 38.30$, $p < .0001$; and free/reduced meals, $x^2(1,N=897) = 62.72$, $p < .0001$. Higher percentages of participants placed in variations of the group model received sick leave and annual/vacation leave, and higher percentages of those in individual placements received employee discounts and free/reduced meals.

For full-time workers, significant relationships were found between supported employment model and receipt of the following benefits: medical/health benefits, $x^2(1,N=379) = 34.94$, $p < .0001$; free/reduced meals, $x^2(1, N=326) = 14.90$, $p < .0001$; and other benefits, $x^2(1,N=230) = 6.27$, $p = .012$. Higher percentages of persons in individual placements received medical/health benefits and free/reduced meals, while higher percentages of group employees received other benefits.

Discussion

Prior to discussing the results of this study, some caveats regarding the data are in order. First, unequal sample sizes are apparent across disability categories and employment models. The RRTC supported employment data base, however, reflects not only the current practices of a large number of service providers, but also approximates national trends in the types of individuals who are receiving supported employment services, the preferences given to program placements, and the outcomes of service (cf. Wehman, Kregel, Shafer, & West, 1989). There is therefore evidence that the participants in this study are representative of supported employment consumers nationwide, and that results may be generalized. Secondly, comparisons across

Table 6

Percentages of Individuals Receiving Benefits Across Individual and Group Employment Models (Part-Time and Full-Time Employees)

	Part-Time Employees Only		Full-Time Employees Only	
Benefit	Individual Placement (n=867)	Group Placement (n=247)	Individual Placement (n=348)	Group Placement (n=88)
None	40.0%	46.9%	23.6%	17.3%
Sick leave	20.7%	38.3%[a]	55.1%	56.8%
Medical/health benefits	21.3%	23.0%	67.1%	29.2%[e]
Vacation/annual leave	30.0%	45.6%[b]	73.7%	72.5%
Dental benefits	6.6%	6.8%	22.0%	14.1%
Employee discounts	25.4%	4.7%[c]	28.9%	21.3%
Free/reduced meals	43.5%	12.4%[d]	36.9%	12.1%[f]
Other	15.0%	10.5%	27.6%	45.6%[g]

Note: Subjects designated as full-time work a minimum of 35 hours per week.

[a] $x^2(1,878) = 25.18$, $p < .0001$

[b] $x^2(1,890) = 18.67$, $p < .0001$

[c] $x^2(1,847) = 38.30$, $p < .0001$

[d] $x^2(1,887) = 62.73$, $p < .0001$

[e] $x^2(1,379) = 34.94$, $p < .0001$

[f] $x^2(1,326) = 14.90$, $p < .0001$

[g] $x^2(1,230) = 6.27$, $p = .012$

program options might be confounded with the types of individuals served, or with geographic characteristics or other systematic variations within provider agencies represented in the RRTC data system (Noble & Conley, 1987).

General Availability of Fringe Benefits

Supported employment consumers do not routinely receive fringe benefits to supplement wages. More than one-third of the sample received no fringe benefits whatsoever. The most frequently reported benefit, vacation/annual leave, was received by less than half of the sample. Sick leave, medical/health benefits, and free/reduced meals were each earned by approximately one-third of the sample, with dental benefits and other benefits received less frequently.

Even among full-time workers, 22% of the sample received no benefits whatsoever and 40% received no medical or health coverage. These numbers contrast sharply with surveys of the general population (U.S. Department of Labor, 1987, June; 1988, May) which indicate that virtually all full-time employees receive benefits, including employer-sponsored medical insurance coverage. These disparities illustrate the need

for advocacy and discretion in the types of jobs and fringe benefits that are targeted for persons with disabilities, and the need for persistence in seeking out such jobs and benefits in the labor market.

Fringe Benefits and Full-Time Employment Status

Not surprisingly, the findings strongly indicate that the availability of fringe benefits is most directly linked to full-time employment status, regardless of disability group or the employment model utilized. In most of the analyses, the frequency with which full-time workers received specific benefits doubled or tripled the frequency at which part-time workers received the benefit. One implication of this finding is that, if a consumer requires certain benefits to supplement earnings, then full-time employment is the most effective route to securing those benefits. This finding also underscores the importance of benefits planning for individuals for whom full-time employment is not a goal.

Fringe Benefits and Disability/Employment Model Status

The findings also indicate that the frequency with which supported employment participants receive particular fringe benefits differs across disability categories and across program models. The most important findings are: (a) Part-time employees with severe or profound mental retardation receive sick leave, vacation leave, and medical/health benefits with less frequency than workers in other disability categories; (b) part-time group model participants receive sick and annual leave with greater frequency than do those in individual placements; (c) part-time employees in individual placements receive employee discounts and free\reduced meals with a greater frequency than employees in group models; and (d) among full-time workers, those in individual placements receive medical/health benefits and free/reduced meals with a greater frequency, and those in group models receive other benefits with a higher frequency.

The finding that participants in group models receive certain benefits with a greater frequency than do persons in individual placements is not surprising, considering that practically all of the group employment placements in the RRTC's data base are contracted by nonprofit agencies, primarily sheltered workshops and work activity centers. These agencies typically provide clients of their programs with some level of

sick and annual leave, usually proportionate with daily work hours or production (Moon & Griffin, 1988; U.S. Department of Labor, 1977, June). The effect of this circumstance would be most apparent in comparisons with part-time participants in individual placement. Consumers in this latter group are almost exclusively employees of for-profit businesses and industries, which tend not to provide high levels of benefits to their part-time employees.

A disturbing finding from the study is the virtual absence of fringe benefits for individuals placed in small business programs. Only four of the 58 members of this subsample earned any fringe benefits. Coupled with other results from the RRTC data base reported by Kregel, Wehman, and Banks (1989), these results portray small business consumers as poorly remunerated employees, both in terms of wages and fringe benefits. These findings could perhaps be justified if individuals placed in small business options have significant learning or productivity deficits; however, over 70% of this group have a primary diagnosis of either
mild or borderline mental retardation.

Availability of Medical/Health Coverage

Perhaps the most significant finding of the study concerns the availability of medical or health benefits for supported employees, particularly those employed full-time. While 67.1% of full-time workers in individual placement earned medical benefits, these benefits were available to only 29.2% of full-time employees in group placements. Although neither placement model approximated the general population, these figures underscore the inability of group employment providers to furnish this essential benefit at a level commensurate with for-profit businesses and industries. What is not known at present, and cannot be determined from the available data, is whether group participants who are employed directly by the host company fare better than those employed by the nonprofit service agency in terms of medical benefits, wages, or other employment outcomes. This information would certainly have an influence on "best practices" for establishing and operating group supported employment options.

Summary and Conclusions

Increased economic independence should be a primary outcome of supported employment for persons with disabilities. Fringe benefits such as annual leave, sick leave, discounts, and medical insurance will contribute to independence, particularly if the likelihood exists that government entitlements will be lost or decreased as a result of remunerative employment. However, this study provides evidence that many supported employees in both individual and group models do not receive fringe benefits in their positions. Further research is needed to examine the causes of this phenomenon: Why are so few supported employees, particularly those with severe mental retardation, working full-time? Why are so many of those who do work full-time, particularly in group placements, not receiving fringe benefits equal to the general populace? Are these findings the result of client limitations and/or financial considerations, employer discrimination, or characteristics of the local labor market? Finally, because position characteristics were not included in the analyses, this study could not determine the best types of companies or positions for receiving specific fringe benefits. This is certainly a future research need which logically would include only those individuals employed by the business or industry in which they work.

The results of this study also underscore the need for supported employment provider agencies to (a) consider the availability of fringe benefits along with wages, schedule, duties, and foregone government benefits in identifying appropriate jobs for their individual placement consumers, and (b) provide fringe benefits for employees of group options at levels commensurate with those found within the local business community.

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An Analysis of State Vocational Rehabilitation Agency Costs to Provide Supported Employment Services

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Abstract

The costs involved in providing the time limited component of supported employment services are analyzed for 194 individuals with severe disabilities served and closed by a state vocational rehabilitation agency. Primary areas addressed in the study include the total costs incurred by the state agency in purchasing supported employment services, a comparison across multiple disability groups of the costs for supported employment services as well as preplacement and other nonjob site specific services, and the sources of funds utilized to purchase time limited services. Results indicate that the primary population served are persons with a mild to moderate level of mental retardation. Primary services purchased for persons with mental health or mental retardation related disabilities involved job site related activities; for persons with physical disabilities the service composition included a comparatively more extensive use of medical services along with job site assistance. Very limited use was made of preplacement skill training or work adjustment for the total population studied. The average expenditure at closure per client across all disability groups for all services purchased by the vocational rehabilitation agency was $2,551. Fund sources utilized involved a combination of federal and state monies. Results represent a baseline for analyzing state vocational rehabilitation costs involved in providing supported employment services.

Substantial evidence exists that state systems of vocational rehabilitation are utilizing supported employment services as an increasingly important component of their efforts to improve vocational outcomes for persons with severe disabilities. Recently, supported employment implementation strategies and policies of the 27 states that received systems change grants from the Federal Rehabilitation Services Administration (RSA) were studied (Wehman, Kregel, & Shafer, 1989). The results of this analysis indicate that significant gains are taking place in both the numbers of persons working in supported employment and the development of statewide systems to maintain and expand on these gains as represented by the following example data:

> Twenty states reported 9,633 persons in supported employment as of Fiscal Year 1986; 26 states reported a corresponding figure of 24,817 persons as of Fiscal Year 1988.
>
> In Fiscal Year 1988, the 7,085 new clients in 23 states entering the public vocational rehabilitation system as a result of supported employment was a 739% increase over the figure reported for Fiscal Year 1986.
>
> Twenty-seven states reported the establishment of 1,393 new supported employment providers during the Fiscal Year 1986 through Fiscal Year 1988 time frame.

The extent of supported employment implementation nationally is also evidenced by individual state examples identified in the 27 state analysis. In Connecticut, a total of 2,658 persons with severe disabilities were participating in supported employment during FY 1988; most had no previous work experience in competitive industry. In California, 214 supported employment programs had been developed by the end of FY 1988 with over 3,200 persons with development disabilities participating in supported employment. In Colorado, the 909 persons in supported employment reported in 1987 represented approximately a 735% increase over the corresponding figure for 1985. In Virginia, which is the data base for this study, the number of organizations with fee-for-service agreements with the state vocational rehabilitation agency to provide supported employment services has grown from four at the time the systems change grant was received in 1985 to approximately 46 as of FY 1988. As of FY 1989, 1,409 persons with severe disabilities had been placed in supported employment with cumulative wages exceeding $9.75 million.

The substantial expansion in the provision of supported employment within state vocational rehabilitation systems has a corresponding fiscal impact on service expenditures. Utilization of federal RSA funds for supported employment services among the 27 states has increased from approximately $8.5 million in FY 1986 to $36 million in FY 1988 (Shafer, Kregel, Wehman, & West, 1989).

Of this $36 million federal expenditure, $14.4 million involved expenditures from the Title VI, Part C supported employment services formula grant program as reported by 27 states and $12.3 million were the Title III state systems change grants to the 27 states. The remaining $9 million were Title I funds as reported by 19 states. The Title I expenditures are particularly significant because these funds are not designated at the federal level for supported employment as are Title III and Title VI, Part C funds. The use of Title I funds for supported employment services presents a critical need to carefully analyze the costs and benefits of this service from the agency funding perspective.

Previous research in the area of cost-benefit analysis has typically considered total program budgets as the basis for projecting individual participant costs (Hill, Banks, Handrich, Wehman, Hill, & Shafer, 1987; Hill, Wehman, Kregel, Banks, & Metzler, 1987; Thornton, Dunston, & Matton, 1989; Tines, Rusch, & McCaughrin, 1989). For example, Tines reported total programmatic costs of $1.6 million for 394 participants of supported employment in Illinois. Similarly, Hill, Wehman, et al., 1987, reported total programmatic costs from a university-based demonstration project of $1.8 million for 214 individuals.

In both of these reports, the investigators go on to estimate individual participant costs by dividing the total program budget by the number of participants. Hill (Hill, Wehman, et al., 1987) prorated their estimates according to the length of time the participants had been served by the project. Such an approach to projecting individual participant costs fails to account for the very real variations in service consumption encountered in supported employment (Kregel, Hill, & Banks, 1988) and does not allow for a clear differentiation of costs associated with initial placement and training and costs incurred in providing follow along services.

The purpose of the following study was to analyze information on individuals who have had their vocational rehabilitation cases closed by the state vocational rehabilitation agency upon completion of their supported employment program. The study provides an initial baseline of information from a representative vocational rehabilitation agency's participation in supported employment. Key information areas that must be developed involve the composition of job site and other services utilized by vocational rehabilitation clients in supported employment and the cost of these services, the policy and resource allocation implications of a multi-disability based statewide program of supported employment, and cost comparisons across disabilities. This study will address the following critical questions related to the cost to a representative vocational rehabilitation agency of providing supported employment services to persons with severe disabilities:

1. What are the total costs incurred by the state vocational rehabilitation agency providing supported employment services?
2. Across a variety of disability groups, how do the costs of services specific to supported employment (e.g., client specific interventions for purposes of job development, job site training or follow along) compare to preplacement and/or off job site services provided prior to, or simultaneous with supported employment services?
3. What are the sources of funds utilized by state agencies to purchase supported employment services?

METHOD

Primary Data Base

The primary data base for this study was drawn from the client services report system maintained by the Virginia Department of Rehabilitative Services (DRS). This computerized file system is maintained by DRS in accordance with federal report requirements and provides a detailed service history for each applicant and client of the agency. Among the information maintained on this system are client identifiers and current DRS service history and expenditures, delineating each unique form of service, the period during which the service was authorized, the unit cost of the services and the number of units "consumed" by the client, and the total amount of funds expended

for the purchase of these services.

All of the data contained in the DRS data base are reported by agency rehabilitation counselors using standardized case report and expenditure report forms. This information is subsequently entered onto agency maintained computer files using a Hewlett Packard 300 series 995 mainframe computer. Specific Service Item Codes (S/I) are defined for each service (e.g., general medical, work adjustment) purchased or provided directly to a client by DRS, and records are maintained within the computerized system on type, quantity and cost of services received by each client.

Secondary Data Base

A secondary data base used in this study was the Supported Employment Information System (SEIS) that was developed by and is operated by the Rehabilitation Research and Training Center on Supported Employment. The SEIS is a comprehensive, computerized mainframe system that consists of over 200 data elements stored in 22 interactive files.

Since 1987, DRS has contracted with the RRTC to maintain the SEIS, separate from the Agency operated system, to monitor the services and outcomes of DRS clients who are served in supported employment. Hence, DRS and the RRTC were maintaining, and continue to maintain, separate, but complimentary data bases on many of the same individuals.

Data are collected and reported to the RRTC by all provider agencies sanctioned by both DRS and the follow along agency, the Department of Mental Health, Mental Retardation, and Substance Abuse Services (DMHMRSAS), to provide supported employment services. As such, agencies submit data to the RRTC both during the time limited phase of DRS funding and also during the ongoing support phase of follow along funding. These data provide detailed information on target employee demographic and functional characteristics, consumer assessment information, the results of job analyses, comprehensive data on the type of job performed by the employee, the amount and type of intervention provided by the supported employment program, supervisors' evaluations of the target employees' work performance, and complete information regarding employment retention and reasons for job separation.

The data for the SEIS is entered and maintained through a terminal based computer system utilizing an IBM 3081K mainframe. All reporting provider agencies receive monthly intervention reports that summarize the activity patterns of all supported employment clients and employment specialists. Additionally, individual provider agency and state aggregated comprehensive reports are produced on a quarterly basis. The reports summarize major service trends, including new placements, types of placements and associated outcomes, job separations, and characteristics of the client population.

Merging of the Data Bases

In January of 1989, discussions with representatives of DRS were initiated by members of the RRTC to assess the possibilities of merging the two separate, but complimentary data bases. A specific request was forwarded to the agency, seeking an electronic tape transfer to RRTC of specified elements within the DRS data base. Approval of this request was provided and the resulting data were made available to the RRTC in June of 1989.

Selection Criteria. The DRS data base, representing well over 60,000 individuals, was electronically reviewed to identify all clients who met all of the following three selection criteria:

- determined eligible for vocational rehabilitation services on or after July 1st, 1987;
- case closure completed by DRS counselor before April 1st, 1989; and
- case service expenditure or counselor recording within services records indicate receipt of transitional/supported employment services.

Merged Data Base

This scanning identified a total of 338 individuals who met all of the selection criteria. A report was generated identifying these individuals and summarized the following information on each client:

- name, SSN, and primary disability;
- eligibility and closure dates;
- total case service expenditures;
- listing of services received, number of units and cost for each individual service, and date of service;
- fund source for service expenditures by DRS (Title I, Title VI-C, State funds, Other); and
- weekly earnings at closure.

The report was then transferred via computer tape to the RRTC for merging with the SEIS to identify individuals contained in both the DRS and SEIS data bases.

The DRS data base and the SEIS were merged, matching client records on the basis of Social Security numbers. This matching process identified 194 DRS cases contained in the SEIS. A total of 144 cases contained on the DRS tape were not matched on the SEIS. A systematic review of the data uncovered three primary causes for the high number of DRS records which did not match with SEIS records. First, SEIS did not become operational until October 1, 1987. As such, DRS clients who began their supported employment program prior to that date were not tracked by the SEIS. Second, 65 of the 144 DRS cases not contained on the SEIS were individuals for whom no expenditures for transitional/supported employment services were reported. These were individuals for whom counselors noted at closure the provision of transitional/supported employment services, but not through a formalized program of supported employment provided by a fee-based service organization. As such, these individuals may be considered as inappropriate subjects, since no evidence exists that they received transitional/supported employment services as implemented by DRS. Third, data recording or entry errors regarding SSN's potentially created situations where records could not be matched. However, extensive efforts were made to minimize the impact of mismatch records due to data entry errors.

A standard quarterly report, summarizing the major characteristics and supported employment services and outcomes of 194 individuals located on both data bases was generated. Additionally, a series of descriptive analyses were conducted using the data contained in the DRS and SEIS data bases. These analyses were designed to address the research questions previously noted.

RESULTS

Sample Demographics

Table 1 summarizes the number of individuals with various primary disabilities that were identified on both data bases. As these data confirm, the DRS data base identified 338 individuals who met the three part selection criteria. In contrast, records for only 194 individuals from the DRS data base were also found on SEIS. This latter

sample will be the primary focus of this article, due to the fact that greater confidence exists that these individuals were receiving supported employment in accordance with state and federal guidelines.

Table 1

Primary Disability and Weekly Earnings of Transitional/Supported Employment Clients

	DRS Sample			VSEIS Sample		
Primary Disability	n	%	Weekly Earning at Closure	n	%	Weekly Earning at Closure
Physical/Orthopedic	30	8.9	$196.62	6	3.1	$181.00
Mental Health	33	9.8	170.00	16	8.3	159.00
Mild Mental Retardation	49	14.5	134.02	33	17.0	114.37
Moderate Mental Retardation	135	39.9	110.72	94	48.5	111.04
Severe/Profound Mental Retardation	56	16.6	73.43	40	20.6	72.24
Learning Disability	19	5.6	206.79	1	.5	83.00
Long-Term Mental Illness	16	4.7	159.75	4	2.1	107.00
Total/Average Weekly Earnings	388		$128.58	194		$109.34

The data in Table 1 indicate that persons with mental retardation, as identified by DRS, comprised the majority of individuals in both data bases; there were relatively few individuals with learning disabilities or chronic illness represented on either data base (6% or less), and persons with mental illness or physical/orthopedic disabilities were equally represented on the DRS data base at approximately 9 1/2% each.

The SEIS data base clearly over represented the individuals identified by DRS to be mentally retarded and in particular, those individuals identified as moderately mentally retarded. Additionally, the SEIS appears to under represent other disability samples, most notable, the individuals with learning disabilities and physical disabilities. The extremely small size of some of these samples on the SEIS severely restricts our ability to draw valid conclusions about the data regarding these individuals.

Also summarized in Table 1 are the weekly earnings of clients at case closure, as reported in the DRS data base. These data reveal that, in general, the individuals represented on SEIS earned less at case closure than the larger sample of individuals represented in the DRS data base. The average weekly earnings for all persons on

the DRS data base was $128.58 as compared to $109.34 for those individuals also found on SEIS.

More detailed demographic and work related information on the smaller sample of individuals in SEIS is summarized in Table 2. According to SEIS data, 171 of the individuals were mentally retarded, as compared to 167 of the individuals as identified by DRS data. Discrepancies between the data bases and primary disability diagnosis were found for the other disability samples as well, suggesting differences in diagnostic determinations between the state agency rehabilitation counselors and the individuals responsible for providing this information to SEIS.

Table 2

Worker and Employment Characteristics for VSEIS Sample

Number of Workers: 194

Sex		Age		Race	
Male:	93	Mean:	30.2	White:	104
Female:	102	Range:	18-58	Black:	67

Primary Disability

Mental Retardation: 171
CMI: 17
Physical/Orthopedic Disabilities: 5
- Cerebral Palsy (1)
- Head Injury (2)
- Other (2)

Visual Impairment: 1
Number of positions held by workers: 2.43

Type of Positions

Food Service:	102	Industrial:	27
Janitorial:	62	Warehouse:	19
Clerical:	9	Others:	15

Hourly Wage	Hours Worked Per Week	Weeks Employed
Mean: $3.60	Mean: 29	Mean: 45
Range: $.73 - 6.70	Range: 3 - 84	Range: 1 - 116

Type of Supported Employment Program

Entrepreneurial	9	(3.7%)
Mobile Work Crew	22	(9.0%)
Enclave	34	(14.0%)
Supported Job	1	(.4%)
Supported Competitive	169	(69.5%)
Time Limited	9	(3.7%)

The SEIS data indicate that the 194 individuals had been placed into a total of 243 employment positions, averaging 1.2 positions per person. Not all of these placements, however, can be attributed to DRS expenditures since very few of the

individuals had received post employment services after case closure or otherwise had their cases reopened for additional services. In most situations, the expense of the replacement services were borne by the ongoing support services funding agency or at times the service provider.

The data in Table 2 also reveal that the individuals identified by SEIS were working on the average, 29 hours per week and were earning on average, $3.60 per hour. Using these figures, we can estimate that the average weekly earnings for these individuals was $104.40, comparing favorably to the $109.34 reported for the same individuals on the DRS data base.

The majority of placements were made into food service positions using the supported competitive employment model or job coach model. Quite impressively, the individuals identified on SEIS had been employed an average of 45 weeks.

Service Composition and Costs

In addition to transitional/supported employment services, DRS was purchasing a variety of other services such as vocational or psychological testing, medical assessment and/or treatment, transportation assistance, and tuition to a college or facility-based program, situational assessment, or the purchase of work related items such as clothing or uniforms. Table 3 provides a summary of the number of individuals receiving each of the various types of services purchased by DRS and the mean expense per client for these different services.

As these data indicate, the purchase of transitional/ supported employment services was the most frequently purchased service for all disability groups. Assessments and transportation services were other frequently purchased services. For individuals with mental retardation or mental illness, funds were used in near exclusion for the purchase of transitional/ supported employment services; relatively few of these individuals typically received other services form DRS. In contrast, individuals with physical/orthopedic disabilities, received a much broader array of services. Based upon the individuals identified on the DRS data base, counselors made sizeable expenditures for medical services (18.58% of all funds expended for this group), facility-based training/tuition (18.57%), and vocational assessment (11.16%).

Table 3

Mean Cost Per Client by Service Category

Primary Disability

Type of Service Provided	Physical Orthopedic n=6		Mental Health n=16		MR-Mild n=33		MR-Moderate n=94		MR-Severe n=40		Learning Disability n=1		Chronic Illness n=4	
Medical/Therapeutic Services	1	$10	6	$23	-	-	4	$32	1	$30	1	$1,296	-	-
Medical Assessments	2	$52	8	$35	13	$40	29	$40	6	$39	-	-	1	$34
Psych/Voc. Assessment	1	$3,669	2	$930	4	$77	10	$215	6	$338	-	-	-	-
Situational Assessment	-	-	2	$92	3	$496	8	$415	5	$440	-	-	-	-
Work-Related Purchases	1	$52	1	$200	-	-	9	$50	3	$47	-	-	1	$33
Job Placement/Skill Seeking Asst.	5	$0	13	$0	26	$0	71	$0	30	$0	1	$0	2	$0
Transportation	2	$368	3	$302	5	$80	13	$284	7	$41	-	-	3	$115
Transitional Employment Svcs.	6	$1,968	16	$1,749	33	$2,458	94	$2,337	40	$2,615	1	$732	4	$1,350
Facility Based Training/ Tuition	1	$6,106	2	$1,525	1	$1,719	3	$837	-	-	-	-	1	$1,622
All Other	-	-	1	$0	1	$0	1	$42	9	$2	-	-	-	-
Total All Services	6	$3,747	16	$2,162	33	$2,592	94	$2,481	40	$2,738	1	$2,028	4	$1,859

Table 4

Sources of Funds Used to Purchase Services for Various Disability Groups

Primary Disability	Title I Case Services		Title VI-C Supported Employment		State Revenue Funds		Other Fund Sources	
	Total Expenditures	Percent of Expenditures per Disability	Total Expenditures	Percent of Expenditures per Disability	Total Expenditures	Percent of Expenditures per Disability	Total Expenditures	Percent of Expenditures per Disability
Physical/Orthopedic	$ 3,631	16.2%	$ 4,881	21.7%	$ 4,197	18.7%	$ 9,776	43.5%
Mental Health	$ 19,088	55.2%	$ 12,319	35.6%	$ 1,257	3.6%	$ 1,934	5.6%
Mental Retardation (Boarderline-Mild)	$ 28,609	33.4%	$ 43,078	50.4%	$ 11,273	13.2%	$ 2,587	3 %
Mentan Retardation (Moderate)	$ 59,510	25.5%	$121,587	52.1%	$ 51,097	21.9%	$ 1,012	.4%
Mental Retardation (Severe Profound)	$ 12,415	11.3	$ 72,016	65.8%	$ 22,156	20.2%	$ 2,929	2.7%
Learning Disability	$ 1,248	61.6%	$ 732	36.1%	–	–	$48	2.4%
Chronic Illness	$ 1,450	19.5%	$ 4,554	61.3%	$ 757	10.2%	$ 675	9.1%
Total Expenditures	$125,950	25.5%	$259,167	52.4%	$ 90,738	18.3%	$ 18,960	3.8%

Table 3 also presents the mean costs for all services expended per client for individuals on the SEIS. As these data indicate, the average cost per client ranged from $1,859 for individuals with chronic illness to $3,747 for individuals with physical/orthopedic impairments. The average cost per client across all disability groups was $2,551. This figure represents all identified expenditures incurred by the rehabilitation agency in providing transitional/supported employment services to the point of case closure. This figure does not however, include costs associated with agency overhead including the activities and services of the counselors. These costs are not accounted for by the agency within their case service data base. As such, the figures cited above reflect purchasable service costs only.

Fund Source

Table 4 summarizes the mix of funds used to provide services to the individuals on the SEIS. As indicated by the totals found at the bottom of the table, Title VI, Part C funds made up the majority of the funds, representing 52.4% of all expended funds. However, it is also quite impressive that 25.5% of all expended funds were drawn from the Title I, case services funds, a net expenditure of $126,000.

Comparison of the fund sources used for the different disability groups reveal that individuals with mental retardation represented the largest net expenditures from three of the four fund sources. This group however, was also the largest group within the sample, representing 86% of all individuals served. Examination of the proportion of funds used by each disability group indicates that all groups were receiving services purchased with a variety of funds. For example, services for individuals with mental illness were purchased predominantly with the use of Title I funds (55.2% of all expenditures for this population) while individuals with severe and profound mental retardation were funded primarily through Title VI, Part C funds (65.8% of expenditures for this population).

It is of interest to note the relationship between level of retardation and the proportion of Title I funds expended. As the data in Table 4 reveal, a greater proportion of Title I dollars were spent on individuals with moderate retardation (26%), which in turn, was greater than the proportion spent on services for individuals identified

as severely or profoundly mentally retarded (11%). An inverse relationship between level of retardation and the use of Title VI, Part C funds was found, suggesting that the agency has relied more heavily upon this latter fund source for individuals experiencing more severe retardation, while restricting the Title I funds for the less severely retarded.

Discussion

The results of this analysis of the service expenditures for 194 individuals served in supported employment by a state vocational rehabilitation agency indicate that the average per participant cost was $2,551. Furthermore, these results suggest that costs varied significantly depending upon the disability displayed by the individual and the resulting array of services that the individual received. These results support previous evidence that supported employment remains primarily a program serving individuals identified as mentally retarded; in this study, persons with mental retardation represented the majority of the study population. Finally, these data clearly indicate that state vocational rehabilitation agencies are using a variety of fund sources, most notably, the basic state grant program, Title I, to supplement federal funding available under Title VI, Part C for supported employment service delivery.

The dominance of persons with mental retardation is reflective of the developmental history of supported employment programs nationwide. As has occurred in many states, the initial focus on persons with mild to moderate mental retardation was the result of a variety of factors such as the research and demonstration efforts for this population, provider systems in place that could redirect efforts to provide community integrated employment services, and the readiness of mental retardation service systems to utilize funds for ongoing support services. Virginia's program, like those in most states, is now evolving to serve a more broad based population with a range of severe mental, physical, or multiple disabilities.

For persons with mental retardation represented in the SEIS sample in Table 1, the mean IQ score of individuals placed in employment is 52.9. There is limited representation of persons with severe or profound retardation, populations traditionally unserved by state vocational rehabilitation agencies and targeted for services in the conceptualization of the national supported employment initiative. The limited

participation to date of more severely disabled persons with mental retardation appears to reflect the large number of mild to moderately retarded individuals served in center based work programs at the point supported employment opportunities are made available in a community. As a result, this group is more readily identified for potential placement in supported employment than individuals with severe to profound mental retardation who have limited to no work related history and are not known by the vocational rehabilitation agency. The predominance of mild to moderately mentally retarded individuals in this study necessitates caution in projecting the costs and service patterns involved in serving the severe to profoundly retarded population, or persons with other severe handicaps, in supported employment.

The majority of individuals assessed in this study were employed in jobs that met the full federal criteria for supported employment. Over 94.5% of the jobs involved a minimum of 20 hours per week of employment. Over 81% involved a moderate to high degree of interaction with non-disabled co-workers. This positive integration level is noted by the fact that nearly 70% of the persons in this sample were placed into supported competitive employment. Our efforts to build a baseline of service composition and cost data are built on job placements that for the most part are fully consistent with supported employment criteria.

The mean cost data projected in this study was derived from a fee-based system of purchasing supported employment services by DRS. The fee-for-service system would appear to provide a number of advantages over contract or program based funding mechanisms. First, payments to providers based on the specific hours or units of services allow for true costs to be tracked and for variations in costs across individual clients to be more readily identified. As a result, mean costs as well as a range of costs are more easily identified. Second, a fee-based system can serve as an incentive to serve more challenging individuals. Provider agencies receive reimbursement based on services provided and can therefore be in position to have costs of serving individuals in the upper ranges of needed intervention hours fully reimbursed. Third, a fee-based system maintains the vocational rehabilitation counselor as the primary manager of service planning and funding.

The place/train approach embodied by supported employment is clearly indicated in Table 3. Of the 194 individuals who received supported employment services, only seven received facility based training such as work adjustment training as a component of their overall vocational rehabilitation program. The service composition for persons in most cases involved assessment, job placement, job site assistance and training, and related services such as transportation. Eighty-six percent of the 194 cases were closed in Status 26, successfully employed, by the vocational rehabilitation agency. These data clearly indicate that direct placement in supported employment, potentially following a period of situational assessment, is a viable approach and that periods of work adjustment or skill training as a part of the vocational rehabilitation plan of services are not necessary. Costs for supported employment services assessed in this study were not additive expenditures occurring after a readiness oriented pre-placement program. Rather, these cost data were in fact alternative expenditures resulting from a community oriented competitive employment outcome.

Vocational rehabilitation administrators desperately need cost comparison data across disability groups for supported employment services. The predictive value of cost data in this study are tempered significantly by the limited number of persons in the non mental retardation categories. Cost data is critically important for projections of resource needs in supported employment due to the expanding number of persons served and the increasing need to access Title I funds as a supplement to the Title VI, Part C supported employment funds. For the period July 1, 1988 to June 30, 1989, the Virginia Department of Rehabilitative Services expended approximately $1.23 million in Title I case service funds for job site training and other time limited supported employment services to serve 624 individuals. The current annual Title VI, Part C grant to DRS is approximately $500,000. As represented in Table 4, supported employment services are being paid for by a combination of specially designated federal and state funds but also a growing amount of non designated funds through the Title I federal allotment. Recent data indicate that this is occurring in other states as well (Shafer, Kregel, Wehman, & West, 1989).

The data presented in this study of service composition and costs for individuals receiving supported employment services through a vocational rehabilitation system establishes a baseline upon which to build. An expanded study of comparable data is needed for both time limited and ongoing support services. Efforts are currently underway to develop a multi-state consortium to study common cost and service data. This broader national data base will enable firmer policy and planning implications to be identified and discussed based on service composition and costs.

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The National Supported Employment Initiative and its Impact Upon State Agency Rehabilitation Counselors

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Abstract

The results of a national survey of state agency vocational rehabilitation counselors are presented. The purpose of this survey was to assess the effect of federally funded statewide supported employment implementation grants by evaluating counselors' knowledge and use of supported employment. The obtained results indicate that the use of federal discretionary awards have been effective in enhancing counselors' access to information on supported employment, improving their knowledge of supported employment regulations, and facilitating their utilization of this new rehabilitative service. Implications for future employment implementation and counselor training are discussed.

In 1985 the Rehabilitation Services Administration (RSA), awarded discretionary grants to 10 states under the authority of Title III of the Rehabilitation Act. The purpose of these grants was to "stimulate systemwide conversion of pre-vocational daytime services to a supported work format" (Gettings & Katz, 1987, p. 7). Title III supported employment grants were awarded to an additional 17 states in 1986, resulting in a total of 27 state vocational rehabilitation agencies receiving this funding. Each state agency received funding for a period of 5 years, resulting in a federal obligation in excess of $60 million.

In 1986, the Vocational Rehabilitation Act was re-authorized (PL 99-506) and included supported employment in determining client eligibility for services (Title I), authorizing personnel preparation projects and demonstration programs (Title III), authorizing new and innovative projects (Title VI, part C), and permitting states to use funds from the Basic State Grant Program (Title I) to fund supported employment.

Clearly, the federal government has attempted to establish supported employment services within state vocational rehabilitation agencies. The 27 states that received initial funding under Title III would appear to hold an advantage in establishing supported employment services in comparison to those states which did not receive this funding and have only recently received funding for supported employment under Title VI, Part C. Furthermore, it may be assumed that the 10 states which initially received Title III funding would have more effectively established supported employment when compared to the 17 states which received their grant awards later. However, no attempt has been made to date to assess the impact of the Title III funding or to evaluate differences among those states which had received this funding.

The purpose of the present study was to evaluate the effectiveness of the Title III funding in assisting state agencies to establish supported employment services. Since state agency counselors are involved in all aspects of the rehabilitation process, from determining client eligibility to case closure, a survey of counselors was conducted as the most effective method to estimate the extent to which supported employment has been incorporated by state vocational rehabilitation agencies.

Method

Participants

The participants in this study were state agency rehabilitation counselors. The selection procedures first consisted of randomly designating 5 of the RSA regions as "Title III" and the 5 remaining regions as "Non-Title III". Only those states that corresponded with their regional designations regarding Title III funding were retained for subsequent sampling.

Initially, one state was selected at random from each region and the commissioner of the rehabilitation agency was contacted for approval to conduct the survey. If approval was not granted, another state within the same region was randomly selected. Only one state refused to participate. A total of 14 states participated in the survey. In three regions, more than one state was surveyed because the originally selected state did not employ a sufficient number of counselors to fill the needed sampling frames. Eight of the participating states had not received Title III funding while three states had received their Title III grants in 1985 (referred to as Early Title III) and the remaining three states received their grants awards in 1986 (Late Title III).

Regional proportionate sampling frames were constructed after contacting all 50 state general vocational rehabilitation agencies by telephone to determine number of counselors employed. Through this process it was estimated that 7,756 rehabilitation counselors were employed by all state general agencies in Fiscal Year 1986. The sampling frames were constructed on the basis of the total number of counselors employed within each RSA region. As such, the number of counselors surveyed within a selected state represented the national proportion of counselors employed within the region.

Instrument

A questionnaire was designed to solicit demographic information from counselors and information regarding five issues related to supported employment: knowledge, attitudes, training needs, sources of information and training, and utilization of supported employment as a case service. The questionnaire consisted of 35 items which used

a variety of response formats including multiple choice, Likert type scales, and open-ended questions. The questionnaire required approximately five minutes to complete.

The questionnaire was reviewed and approved by members of the Council of State Administrators of Vocational Rehabilitation (CSAVR) task force on transition and supported employment and a group of 33 state agency rehabilitation counselors employed by a state not participating in the study. Based upon the comments provided by the counselors and the CSAVR task force members, modifications were made to the wording and structure of the questionnaire.

Administration Procedures

The questionnaire was mailed to the 1,485 rehabilitation counselors included in the sample, accompanied by a cover letter explaining the purpose of the survey, a letter of endorsement from the counselor's state commissioner, and a self-addressed business reply envelope. Two weeks after the questionnaires were mailed, follow-up letters were sent to all counselors. A total of 790 completed questionnaires were returned, representing a 53% response rate. Response rate variation among regions (36% - 65%) was not statistically significant.

Results

Characteristics of Participating Counselors

Demographic information revealed that the majority of the participating counselors possessed a master's degree (67%). Additionally, 31.3% of the counselors possessed Bachelor's degrees, while 1.28% and .5% of the counselors reported some college education and doctoral degrees, respectively. Only 22.6% of the responding counselors indicated that they were certified rehabilitation counselors (CRC). Statistical analyses indicated that fewer counselors (19.1%) from states that did not receive Title III funding were certified as compared to their counterparts from the early (24.6%) or late (32.8%) Title III funded states $X^2 = (2, N = 739) = 10.28, p < .0006$. Additionally, counselors from the non-funded states reported higher proportions of their caseloads with severe disabilities (63.2%) as compared to counselors from the early (57.2%) or late (56.3%) states $F = (2,699) = 6.33, p < .0019$.

Information Sources

Counselors from all three groups of states indicated that state agencies were the most prevalent source of information on supported employment. Additionally, counselors from the Late Title III states more frequently cited their state agency, X^2 (2, N = 765) = 9.64, p < .008, and professional workshops, X^2(2, N = 765) = 17.75, p < .0001, as sources of information on supported employment as compared to counselors from the other groups of states.

Knowledge About Supported Employment

Seven statements were designed to assess counselors' knowledge regarding the federal supported employment regulations (Federal Register, August 14, 1987). For each statement, counselors could respond 'correct', 'incorrect' or 'do not know'. These responses were subsequently scored as correct or incorrect on the basis of the federal regulations. Chi-square analyses, revealed that a significantly greater proportion of the counselors from the Late Title III states correctly responded to the statements regarding the payment of minimum wages, the development of the individualized written rehabilitation program (IWRP), the funding for ongoing supports, and the provision for ongoing supports at least twice monthly. Table 1 provides the frequency and proportion of counselors who correctly responded to each of the seven statements.

Use of Supported Employment

Two items on the questionnaires asked counselors to indicate the methods by which they provided supported employment to their clients and the proportion of clients on their caseloads that had received supported employment services during the previous 6-month period. Table 2, summarizes the number and proportion of counselors indicating the various methods of supported employment utilization. These results indicate that service provider referral is the most common method of supported employment provision.

Chi-square tests revealed that significantly more counselors (p<.01) from Late Title III states indicated that they refer clients to supported employment providers or provide these services directly than their counterparts from the non-funded or Early

Table 1

Knowledge Regarding Federal Regulations Governing Supported Employment

	Numbers and Proportion of Counselors Responding					
	Counselor Sample					
	Non-Title 3		Title 3 'Early'		Title 3 'Late'	
Knowledge Statement	%	n	%	n	%	n
Clients placed into supported[a] employment must earn at least the federal minimum hourly wage.	40.1	189	30.4	55	52.4	65
Clients placed into supported employment must work at least 20 hours per week.	56.8	267	64.6	117	60.5	75
Clients referred to supported[b] employment must have an Individualized Written Rehabilitation Program developed.	87.1	411	84.0	152	88.7	110
Ongoing services in[c] supported employment have to be funded by the state vocational rehabilitation agency.	57.2	270	64.4	116	79.8	99
Placement into a job where more than eight (8) handicapped workers are employed is allowable under supported employment.	29.1	136	33.0	59	41.5	51
Clients receiving ongoing[d] support services in supported employment must be provided services at least twice a month.	2.68	126	17.2	31	37.9	47

Note

a. X^2 (4,N, = 776) = 15.16, p < .004

b. X^2 (4,N, = 777) = 9.88, p < .043

c. X^2 (4,N, = 776) = 22.14, p < .0000

d. X^2 (4,N, = 775) = 18.23, p < .0001

Table 2

Method of Supported Employment Use

Method of Supported Employment Use	Counselor Sample					
	Non-Title 3		Title 3 'Early'		Title 3 'Late'	
	%	n	%	n	%	n
Do Not Currently Use[a]	260	56.4	77	42.3	39	32.0
Referral to Service Provider[b]	144	31.7	78	42.9	69	56.6
Service Provided Directly by Counselor[c]	35	7.6	16	8.8	25	20.5
Other	43	9.3	28	15.4	12	9.8

Note More than one response allowed; percentages sum to more than 100.

a. X^2 (2, N = 765) = 27.52, $p < .000$

b. X^2 (2, N = 765) = 27.38, $p < .000$

c. X^2 (2, N = 765) = 16.29, $p < .000$

Title III states. Conversely, significantly more counselors from the states that did nor receive Title III funding responded that they do not currently use supported employment ($p<.001$).

Counselors were also asked to report the proportion of clients on their active caseloads during the previous 6 months for whom they had provided supported employment. Only 299 counselors, representing 38% of the 790 counselors, responded to this question. While the responses varied from 0% to 90%, the model reported caseload proportion was 1%, indicating an extremely skewed distribution. No statistically significant differences were detected in caseload proportions on the basis of Title III funding.

Future Training Needs

A 12-item multiple choice section was also provided for counselors to identify content areas in which they could benefit by receiving additional training. Greater than 50% of all counselors identified training needs in the following content areas: role and

function of rehabilitation counselors, selecting appropriate supported employment options, evaluating services providers, evaluating clients, and funding strategies. Chi-square comparisons revealed that significantly more counselors from non-funded states, as compared to counselors from either of the Title III funded samples, identified training needs in the following content areas: general information, determination of client eligibility, and case reporting. Table 3 summarizes the proportion of counselors identifying additional training needs in each of content areas.

Table 3

Counselor Identified Training Needs

	Counselor Sample					
	Non-Title 3		Title 3 'Early'		Title 3 'Late'	
Content Area	%	n	%	n	%	n
No training needed[a]	36	7.8	27	14.9	7	5.7
General information[b]	227	49.4	63	34.8	30	24.6
Evaluating clients[c]	277	60.4	81	44.8	68	55.7
Working with other agencies	145	31.6	56	30.9	44	33.4
Monitoring and evaluating supported employment service providers[d]	275	59.9	79	43.7	82	67.2
Determining client eligibility[e]	266	53.6	75	41.4	46	37.7
Case reporting procedures[f]	222	48.34	64	35.4	50	40.9
Marketing supported employment[g]	218	47.5	61	33.7	63	51.6
Counselors' role and function in supported employment	296	64.5	103	56.9	73	59.8
Funding strategies[h]	253	55.1	85	47.0	76	62.3
Choosing appropriate supported employment options	278	60.6	8	4.4	8	6.6
Other training needs	29	6.3	8	4.4	8	6.6

Note More than one respone allowed; percentage sum to more than 100.

a. X^2 (2, N = 762) = 9.68 p < .007

b. X^2 (2, N = 762) = 29.49, p < .000

c. X^2 (2, N = 762) = 12.81, p < .002

d. X^2 (2, N = 762) = 19.96, p < .000

e. X^2 (2, N = 762) = 14.05, p < .001

f. X^2 (2, N = 762) = 9.48, p < .009

g. X^2 (2, N = 762) = 12.66, p < .002

h. X^2 (2, N = 762) = 7.20, p < .027

i. X^2 (2, N = 762) = 11.43, p < .003

Discussion

The purpose of this study was to assess the impact of Title III funding by evaluating state agency rehabilitation counselors' knowledge and use of supported employment and to identify areas in which the counselors need additional information and training. In general, these results suggest that the Title III discretionary grants have facilitated supported employment implementation efforts. Results were presented which suggest that a greater proportion of counselors from the Title III funded states were more knowledgeable of the supported employment regulations (see Table 1) and reported greater utilization of this new service (see Table 2). Additionally, results were presented which suggest that counselors from Late Title III funded states had enjoyed greater access to information and training on supported employment.

These data provide one indication of the extent to which supported employment has been adopted within the federal-state vocational rehabilitation system. Although supported employment was authorized as a service to be provided by the federal-state rehabilitation system (P.L. 99-506), this new service option was not immediately embraced by the rehabilitation community (c.f., Baxter, 1986). As such, it is quite promising to discover that well over 80% of all counselors have received information on supported employment and, more importantly, over 50% of the counselors have used this new service for clients on their caseloads.

One of the more significant findings of this study was the impact that Title III funding had upon counselors' response patterns. Consistently, counselors from those states receiving Title III funding responded that they were more knowledgeable about supported employment, made greater of use this service, and had received more information than their counterparts from the states that had not received this funding. Furthermore, counselors from the Title III funded states identified fewer training needs than their counterparts from the nonfunded states. Assuming these results are accurate, they indicate that the federal funding initiative of the Title III system change projects has been effective.

A careful inspection of these results reveal that statistically significant differences were evidenced among counselors from the early and late Title III funded states.

Generally, counselors from the Title III late funded states responded more favorably than their counterparts from the early funded states. For example, significantly more counselors from the Title III late funded states responded correctly to four out of the seven statements assessing supported employment knowledge. Significantly more of these counselors also indicated utilization of supported employment. Finally, significantly more counselors from the late funded states indicated that they had received information on supported employment from their state agency and from professional workshops and publications. These findings suggest that those states included in the late sample have effectively implemented system change activities at the level of the state agency counselor and they have done so in a shorter period of time than those states included in the early sample.

The differential results, with regard to early and late funded states, were not expected. In fact, it has been assumed that counselors from the early funded states would display more favorable response patterns because of the additional year of funding. Several plausible hypotheses may be proposed to account for these response patterns. First, it is conceivable that the late funded states were more progressive to begin with and had already begun to implement a system of supported employment prior to the Title III award. Second, it is conceivable that greater resources were available to the late funded states since these states initiated their activities a year later than the states in the early sample. A tremendous amount of literature, training materials, and training opportunities regarding supported employment have been developed in a very short time period.

Third, it is possible that the late funded states concentrated greater effort to effect change at the counselor level. The initiation of activities by the late funded states did not begin until it was fairly clear that supported employment was going to be included within the re-authorization of the Vocational Rehabilitation Act (P.L. 99-506). As such, the late funded states began their projects with the promise of supported employment being recognized as a legitimate service option within the federal-state system. This promise may have lead these states to initiate activities differently from the early funded states.

In addition to assessing the impact of the Title III projects, these data provide direction for future projects and activities concerning rehabilitation counselors and supported employment. Based upon the response patterns to those statements assessing knowledge, it is evident that counselors need to learn more about the regulations governing supported employment. Most notably, counselors need to receive more information regarding the integration requirements of supported employment as well as the provision of ongoing support services. Counselors' lack of knowledge regarding these aspects should not be surprising since integration and provision of ongoing support represent two issues that the federal-state rehabilitation system has typically not addressed.

Future supported employment efforts for rehabilitation counselors can also be identified by reviewing the training needs that counselors identified. In general, a majority of counselors expressed training needs in all of the content areas that were listed. No fewer than 24% of the responding counselors identified training needs in each of the content areas specified while fewer than 10% of all counselors responded that they did not need additional training. Base upon these results, it appears that extensive need exists among rehabilitation counselors for additional information and training regarding supported employment.

One of the important findings was that a sizable proportion (42%) of all responding counselors indicated that they still needed general information about supported employment. Additionally, the training need most frequently identified (62% of all respondents) was the role and function of rehabilitation counselors in supported employment. Previous discussion regarding the role of rehabilitation counselors in the supported employment process has vacillated between suggesting that counselors provide supported employment services to clients directly and referring clients to supported employment service providers (Revell & Arnold, 1984; Szymanski, 1987; Tooman et al., 1988).

The results of this survey clearly indicate that counselors more frequently referred clients to supported employment providers rather than providing services directly. This finding is not surprising and in fact was expected, since client referral

to a service provider is the most common means by which most services are provided to vocational rehabilitation clients (Wright, 1980). Hence, it appears that the actual role of rehabilitation counselors in providing supported employment is primarily that of case manager and service broker (Emener & Rubin, 1990; Emener & Spector, 1985; Matkin, 1983; Rubin et al., 1984; Tooman, Revell, & Melia, 1988).

This study represents the only known national survey of rehabilitation personnel regarding supported employment implementation. Certainly a host of other rehabilitation professionals, such as state agency commissioners, program managers, and field directors, should also be studied. Rehabilitation counselors, however, play a critically important role in determining the extent to which support employment services are provided and integrated within the federal-state rehabilitation system. These individuals are responsible for determining that clients with severe handicaps are eligible to receive services and, subsequently, for deciding that these individuals should receive supported employment services. If supported employment is to be institutionalized within the federal-state rehabilitation case management system and if individuals with severe handicaps are to gain greater access to services from this system, it will be due in large measure to the activities of rehabilitation counselors.

This study provided a rather singular approach toward analyzing the system wide impact of Title III funding. These results leave little doubt that this funding initiative has been effective in assisting state agencies to implement system wide change to provide supported employment services. Future research is needed to more carefully and more fully evaluate the impact of both Title III funding as well as Title VI, Part C funding. Policy analysts are presented with a rare opportunity to evaluate disability policy within a general multiple lag or multiple baseline design due to the lag time in the awarding of the separate Title III projects and the subsequent authorization of Title VI, Part C funding. Such an analysis could provide insight into the system change process which has rarely been studied in the area of disability policy.

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Social Integration in the Workplace:

An Analysis of the Interaction Activities of

Workers with Mental Retardation and Their Co-Workers

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Abstract

This study describes the social interactions and activities of 15 workers with mental retardation employed in supported competitive employment positions and 15 of their co-workers. Direct observation and survey instruments were used to assess the social integration of employees during work hours and breaktime. The results suggest that supported employees and co-workers do not differ in the total number of interactions they engage in. Co-workers were found to interact more frequently during breaktime than the supported employees. Co-workers were also found to participate in work-related interactions more often than the supported employees. The opportunities available for social interactions in the workplace and the patterns of supported employee and co-worker participation are described. These results are discussed in relation to their implications for supported employment services and future research.

One of the reasons why work is a valued activity is that it provides the opportunity for employees to establish social relationships with other co-workers. Relationships among employees can vary in intensity from casual acquaintanceship to friendship depending upon the degree to which individuals share similar interests, experiences, attitudes, or personality traits (Bell, 1981; Fine, 1986; Pogrebin, 1987). The workplace is particularly conducive to the development of friendships since employees have regular face-to-face contact and share common experiences (Pogrebin, 1987). Friendships play an integral role at work as evidenced by reports that job satisfaction, work performance, and job retention are related to an employee's participation in social relationships with co-workers (Kirmeyer, 1988; Klein & D'Aunno, 1986; Young, 1986). Equally important are the social supports that friends provide which serve as mediating or buffer systems during stressful times (Argyle, 1986; Ginsberg, Gottman, & Parker, 1986). Furthermore, friendships just make work a much more enjoyable experience.

Supported employment has increased the opportunities for establishing friendships from those typically available to persons with severe disabilities previously served in sheltered workshops and day activity programs (Nisbet & Callahan, 1987; Wehman & Moon, 1988). It is characterized by paid work in integrated employment settings where job duties are performed with other employees who are not handicapped. One distinguishing feature of supported employment is the training of relevant job skills and work-related behaviors directly at the job site by an employment specialist (Moon & Griffin, 1988; Wehman & Kregel, 1985; Wehman & Melia, 1985). In addition, the employment specialist is responsible for identifying the valued social interactions that occur at the work place and for training the employee to participate appropriately with co-workers, supervisors, and the public (Chadsey-Rusch, 1986; Moon, Goodall, Barcus, & Brooke, 1986). Without this support many employees might possibly experience physical integration as defined by Federal regulations but not participate in the social interactions essential for the development of meaningful relationships with co-workers (Federal Register, August 14, 1987; Shafer, Rice, Metzler, & Haring, 1989).

Integration in the workplace has been defined as "..participation of a worker in the operation of the work culture at both the environment's required level and the worker's desired level" (Shafer & Nisbet, 1988, p. 57). Previous research on integration has focused upon comparing the frequency and content of interactions by workers with and without disabilities. Chadsey-Rusch, Gonzalez, & Tines (1987) found no differences in the frequency of interactions between eight workers with mental retardation and eight nonhandicapped co-workers. The authors reported differences in the purpose of interactions between the two groups. Workers with mental retardation participated in task-related interactions with similar frequency as their co-workers, but were less likely to be involved in nontask-related interactions. These latter interactions most often occurred during break and arrival to work.

Lignugaris/Kraft, Rule, Salzberg, & Stowitschek (1986) observed 17 workers with disabilities and 16 nonhandicapped workers and found that both groups were similar in the patterns and content of their interactions. Their results showed that workers with and without disabilities interacted frequently with co-workers mostly about work-related topics. Significant differences were found between the two groups in frequency of joking and laughing with nonhandicapped workers participating more often. A second study by Lignugaris/Kraft, Salzberg, Rule, & Stowitschek (1988) reported similar findings. Nineteen workers with moderate developmental disabilities and 18 nonhandicapped workers were found to participate in conversations during work and break with similar frequency. The authors reported that workers with disabilities engaged in more greetings and less joking and kidding during break than the nonhandicapped workers.

The interaction patterns of eight workers with severe disabilities in an enclave supported employment setting were compared with seven nonhandicapped co-workers in a study conducted by Storey, Rhodes, Sandow, Loewinger, & Petherbridge (1988). The authors reported that employees without disabilities spent more time engaged in work and participated more in work and personal conversations than the workers with disabilities. In addition, the interactions of employees with disabilities were more often

with the enclave supervisor and differed in content from nonhandicapped workers in that their interactions primarily involved receiving instructions and compliments.

Lastly, a study by Test, Farebrother, and Spooner (1988) reported similar frequencies in interactions for six workers with and without disabilities on most types of interactions. The three workers with disabilities were found to receive more directions and share less information with others when compared with the nonhandicapped workers. Critical social skills identified by the authors include following directions, asking questions, providing job-related information, using good-natured joking and teasing skills, and surviving in low praise environments.

These studies indicate that employees with disabilities are participating in interactions with similar frequency when compared to their nonhandicapped co-workers. However, the differences reported in the content and type of interactions for employees with disabilities suggests that they are not interacting at a level equal to the work culture and are therefore, not fully integrated at the job site.

The previous studies reviewed indicate the need to train workers with disabilities to engage in the social interactions that occur at the job site. However, the assumption cannot be made that the interactions that supported employees encounter during work reflects the type, content, and frequency of the interactions that they are expected to engage in during break if they want to participate equally with their co-workers. The purpose of the present study was to compare the interactions of supported employees and co-workers during work and break to assess the degree with which supported employees are participating in the work culture at the job site. Specifically, the relationship between the supported employee and co-workers' length of employment and the frequency of their social interactions was investigated. In addition, the level of supported employee and co-worker social participation and involvement in company activities were compared.

Method

Participants and Settings

Thirty workers who were employed in thirteen competitive businesses participated in this study. One worker with mental retardation and one co-worker from

each job site were selected to participate. Two of the job sites employed multiple workers at different locations in the businesses. The workers with mental retardation were randomly selected from the Supported Employment Information System (SEIS). SEIS is operated by the Rehabilitation Research and Training Center (RRTC) at Virginia Commonwealth University. Criteria for selection included having at least one other co-worker performing the same job, and being stable on their job as indicated by six hours or less of trainer intervention time per month for two consecutive months immediately prior to selection. Thirty-four supported employees met the election criteria.

Program director and supported employee consent was required for participation in the study. Seven of the participants were lost due to job separations and five as a result of the project directors or employers not giving permission for participation. The remaining 22 supported employees were contacted in order of selection until 15 participants were identified. All of the workers performed service-related jobs with 60% employed in food service, 20% in janitorial, and 20% in other entry level positions (i.e., manufacturer, grocery bagger, elevator operator). Table I summarizes key demographic characteristics for each pair of participants.

Supported Employees. Fifteen workers identified as having mental retardation in the moderate to severe range according to standardized test scores (IQ $\leq$ 67) and who were currently employed in supported competitive employment in the greater Richmond, Virginia area were selected to participate. All of the supported employees were male. IQ scores ranged from 27 to 59 with a mean score of 47. Ages ranged from 23 to 37 with the average age being 30. Supported employees were employed in their present position from nine months to ten years with an average length of employment of 5.5 years. The mean hourly wage for the consumers was $4.75 with an average of 34 hours worked per week.

Co-workers A comparison group of 15 co-workers who were employed in the same business and worked the same hours as the supported employees were selected to participate. One co-Worker was randomly selected from each job site. The co-worker was selected from all co-workers performing similar jobs after receiving

Table 1

SUPPORTED EMPLOYEE AND CO-WORKER CHARACTERISTICS

Employee	Type of Work	Years with Company	Age	Sex	I Q Score	Speech
Charlie	Dishwasher	1.2 years	29	Male	52	Clear
Co-Worker	Dishwasher	2 years	27	Male	--	Clear
Bill	Utility Worker	9.3 years	36	Male	45	Unclear
Co-Worker	Utility Worker/Leader	1.5 years	46	Male	--	Clear
Jesse	Dishwasher	8.3 years	33	Male	45	Clear
Co-Worker	Dishwasher	4 years	31	Male	--	Clear
Allen	Dishwasher	5.2 years	30	Male	46	Unclear
Co-Worker	Cook	1 year	30	Male	--	Clear
Woody	Manufacturer	3.4 years	28	Male	54	Clear
Co-Worker	Manufacturer	10 years	42	Female	--	Clear
Roger	Custodian	9.4 years	37	Male	57	Unclear
Co-Worker	Custodian	1.5 years	24	Male	--	Clear
Torrance	Courtesy Clerk	.9 years	33	Male	43	Unclear
Co-Worker	Courtesy Clerk	2 years	27	Male	--	Clear
Carl	Dining Room Attendant	10.1 years	33	Male	27	Unclear
Co-Worker	Dining Room Attendant	10 years	27	Male	--	Clear
Arthur	Utility Worker	5.2 years	27	Male	44	Clear
Co-Worker	Utility/Worker Food Server	5 years	25	Male	--	Clear
Charles	Custodian	4.3 years	26	Male	47	Unclear
Co-Worker	Custodian	10 years	61	Female	--	Clear
Lou	Custodian	5.7 years	27	Male	59	Clear
Co-Worker	Custodian	9 years	60	Female	--	Clear
Dexter	Dishwasher	4.3 years	29	Male	48	Clear
Co-Worker	Dishwasher	.2 years	18	Male	--	Clear
Eric	Elevator Operator	10 years	28	Male	57	Clear
Co-Worker	Elevator Operator	21 years	58	Male	--	Clear
Willy	Utility Worker	1.6 years	23	Male	51	Unclear
Co-Worker	Utility Worker	.4 years	47	Male	--	Clear
Caine	Dishwasher	3.2 years	28	Male	41	Unclear
Co-Worker	Dishwasher	3 years	34	Male	--	Clear

permission from the employer and written consent from the co-worker. The co-workers were employed in their positions from two months to 21 years with an average length of employment of 4.5 years. Ages ranged from 18 to 61 with the average age being 37. Twelve of the co-workers were male and three were female.

Data Collection Procedures

Observational Data Collection. The social interactions of supported employees and co-workers were observed and recorded during work hours and lunch/break time. Eight observation intervals of thirty minutes duration were conducted at each job site. Four observations were scheduled during the participants' work hours and four during their lunch or break times. Observation times were selected based on the employers' preference and the observers' schedule. Lunch or break observations were not available at five job sites where participants did not receive a scheduled break. Participants were informed that observations were going to be conducted but were not told when the observations were going to be made or who the observer would be.

The supported employee and co-worker were observed individually for alternating five minute periods using an interval recording system. The participant to be observed first was randomly selected by flipping a coin. The intervals were broken down into ten second observation and five second recording periods. The observer placed a mark in the corresponding interval for each interaction that was observed. Sixty recorded intervals were obtained for the participants during each work observation. Between 20 and 60 recorded intervals were obtained during lunch or break times due to variations in participant breaktimes which ranged from a total of five minutes to one hour in length.

A micro-tape recorder was used to indicate the start of the observation and record intervals. Observers maintained a distance of 10 to 15 feet during the observations and began observing 10 minutes prior to each observation interval before beginning actual data collection. Observations were suspended when the participant left the work area and were resumed when the participant returned to the work area.

Instrumentation. Three instruments were developed for data collection. These included one observational coding form and two survey questionnaires. The observational recording form consisted of the following data elements: a) the number of persons present in the work environment (co-workers, supervisors, & others), b) the level of task dependency (isolated, parallel, or interactive work), c) the type of interactions (initiation or response), d) the content of the interactions (work or non-work related), e) the appropriateness of the interactions (appropriate or inappropriate), and

f) unknown interactions. The definitions for each observational category are provided in Table 2.

Table 2

Observational Category Definitions

Type of Interaction		
Initiation	-	Verbal sounds or nonverbal behaviors that are directed toward another individual to begin an interaction with that person or to change the content of an interaction that is already being engaged in with that person.
Response	-	Verbal sounds or nonverbal behaviors that are directed toward another individual following a verbal sound or nonverbal behavior from that person.
Content of Interaction		
Work-Related	-	Verbal or behavioral interactions regarding general job duties, work materials, other workers, supervisors, or other topics which are explicitly in reference to the employment setting.
Nonwork-Related	-	Verbal or behavioral interactions regarding any topic not related to the employment setting.
Appropriateness of Interaction		
Appropriate	-	Verbal or behavioral interactions exhibited by an individual that are comparable to other interactions occurring in the environment and in which participation by the individual is acceptable.
Inappropriate	-	Verbal or nonverbal interactions exhibited by an individual that are not comparable to other interactions occurring in the environment or in which participation by the individual is unacceptable.
Unknown Interaction	-	Any interaction in which the content, direction, or appropriateness cannot be determined.

The two survey instruments were designed to be administered to supported employees, co-workers, and supervisors. Survey items were based upon modifications to an instrument used in earlier work (Shafer, et al., 1989). Drafts of the instruments were sent to six experts in the field of supported employment to identify the variables that define integration.

The Employee Social Activity Questionnaire was designed to assess the interaction patterns of employees and their desired level of social involvement. The survey instrument consisted of 18 questions which assessed the following: a) employee demographics, b) feelings about co-workers, c) time spent with co-workers' d) satisfaction with co-worker involvement, and e) participation in company activities. The form was administered verbally to the supported employees and co-workers who

participated in the study.

A Job Site Social Activity Questionnaire was designed to assess the availability of opportunities for employee interactions in the work place. The questionnaire was administered verbally to one supervisor from each job site. The survey instrument included 18 questions which assessed the following: a) supervisor and company demographics, b) employee contact with other employees, c) supervisor contact with employees, d) perceptions of employees' feelings toward one another, and e) activities provided by the company.

All data were collected by the first and third authors. Observer training was conducted by the first author using videotapes of job sites and field observations at actual businesses. Training continued until interobserver agreement scores reached a criteria of 80% or higher for three consecutive 15 minute practice sessions.

Survey Data Collection. Survey instruments were administered to the supported employees, co-workers, and supervisors to assess their perceptions of employee social interactions. Participants were asked if they would complete the survey prior to the collection of observation data. Surveys were administered at different times during the scheduled observation periods at a time convenient for the respondents. Written consent to participate in the study was obtained from all participants at the time the survey was administered.

Reliability. Interobserver reliability data was calculated for 65 (11%) of the 583 observation sessions. At least one reliability session was collected at each job site except for one in which the work area was too small for two data collectors to be present at the same time. Occurrence interobserver agreement scores were calculated by comparing the intervals on both datasheets on type, content, and appropriateness of interactions. The number of intervals in which both data sheets were in agreement on type, content, and appropriateness were divided by the total number of intervals observed. The occurrence agreement mean was 95.4%. Percents across each category ranged from 90.8% to 100%. Reliability was also assessed to compare observers' recorded frequencies of interactions. For these computations the larger

frequencies were divided by the smaller frequencies resulting in a mean reliability score of 81%.

Data Analysis

Descriptive statistics were obtained for all the data and frequency tables were used to organize survey response data from supported employees, co-workers, and supervisors. Data from each observational category was tested for normal distribution due to the small sample sizes. None of the observational categories were found to be normally distributed, and as such, they were all transformed to create an underlying normal distribution (Zar, 1984) .

Paired comparison T-tests were conducted to compare the frequency of social interactions of each supported employee and co-worker pair at the 15 job sites (Agresti & Finlay, 1986). Analyses were completed for each pair on all observational categories.

Comparisons between the supported employees and co-workers, as groups, were made using a two-sample T-test (Agresti & Finlay, 1986). Analyses of covariance were completed between supported employees and co-workers with length of employment as a covariate, to see if detectable differences between the groups' mean frequency of interactions were related to length of employment.

Results

Participation in Social Interactions

Paired Analyses. Figure 1 displays the frequency of total interactions across all observations for each supported employee and co-worker pair. Results indicate that supported employee and co-worker pairs did not differ significantly on total number of interactions. Co-workers were found to interact more frequently at nine of the job sites while supported employees interacted more often at six of the job sites.

The mean difference between number of interactions for the supported employee and co-worker pairs for each category are delineated in Table 3. The average differences between participant pairs were not significantly different on six of the nine observational categories. Significant diferences were revealed for work related interactions ($T_s = 2.50$, $p < 0.05$), breaktime interactions ($T = 2.55$, $p < 0.05$), and inappropriate interactions ($T = 2.28$, $p < 0.05$).

Figure 1

Frequency of Total Interactions for Each Supported Employee and Co-Worker Pair

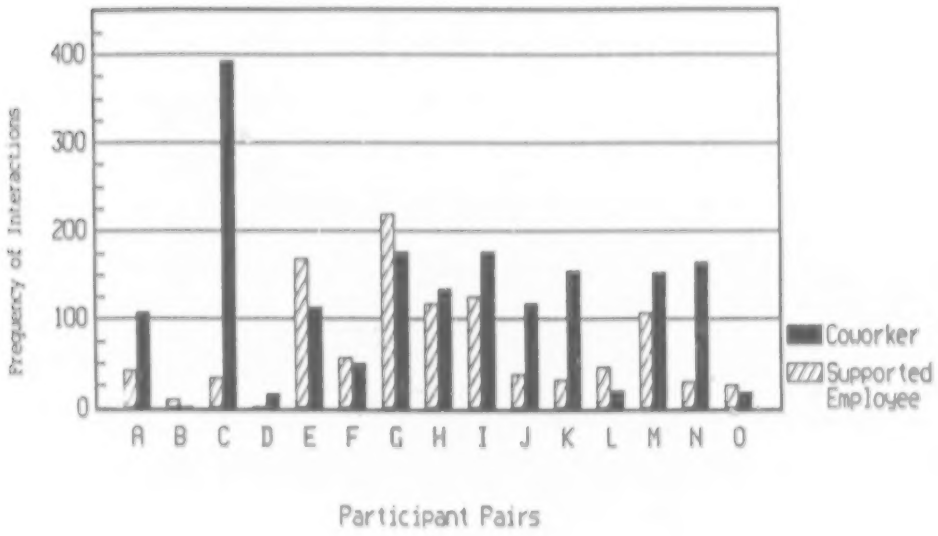

Table 3

Mean Difference in Frequency of Interactions Between Supported employee and Co-Worker Pairs by Observational Category (N = 15)

Observational Category	Mean Difference
Worktime Interactions	1.7458
Breaktime Interactions* (N = 10)	7.5280
Work Related Interactions**	2.8714
Nonwork Related Interactions	2.5825
Appropriate Interactions	4.1791
Inappropriate Interactions***	-0.9551
Initiation of Interactions	3.6706
Response Interactions	2.2100
Unknown Interactions	2.0620

* ($T = 2.55$, $p < .05$)
** ($T = 2.50$, $p < .05$)
*** ($T = 2.28$, $p < .05$)

Co-workers were found to participate in work related interactions during a higher percentage of intervals than supported employees of the same company who performed

a similar job. Of the ten participant pairs who received a break, the number of interactions engaged in during breaktime were significantly higher for co-workers than the paired supported employees.

Group Analyses. As a group, supported employees were not found to differ significantly from co-workers on frequency of total interactions. The mean frequencies for each group by observational category are provided in Table 4. Significant differences between the groups of supported employees and co-workers were revealed for breaktime interactions (T = 2.8290, p <O.05) and inappropriate interactions (-2.2154, p < .05).

Table 4

Mean Frequency of Interactions of Supported Employees and Co-Workers by Observational Category (N = 30)

Category	Supported Employee x Interactions	Co-Worker x Interactions
Total	69.80	118.93
Worktime	49.07	62.27
Breaktime*	31.10	85.00
Initiations	33.00	60.67
Responses	33.73	48.93
Work Related	18.60	35.06
Nonwork Related	48.13	74.53
Appropriate	65.27	109.40
Inappropriate**	1.47	0.20
Unknown	3.07	9.33

* (T = 2.8290, p < .05)
** (T = -2.2154, p < .05)

Co-Workers were found to interact with others during break more than twice as often as the supported employees. Supported employees were found to interact inappropriately more frequently than co-workers. Statistical analysis indicated a significant difference between the number of inappropriate interactions by supported employees and co-workers, however, neither supported employees nor co-workers interacted inappropriately very often. Most of the inappropriate interactions observed occurred at one job site. Therefore, it cannot be concluded that supported employees

interact inappropriately with more frequency than the co-workers. The average frequency was O.2 inappropriate interactions for the co-workers and less than I.5 for the supported employees.

In contrast to the paired analysis, work-related interactions were not found to be significantly different between the two groups. The extreme variation in number of interactions for one pair of participants may have been responsible for the results obtained when the paired data was analyzed.

Effects of Length of Employment

All analyses of covariance with length of employment as the covariate produced nonsignificant results. The difference between supported employees and co-workers as reflected in frequency of interactions during break was not found to vary with length of employment. Individuals who had been working for shorter periods of time interacted no less frequently than those who had been at the job much longer.

Patterns of Social Participation

The Job Site Social Activity Questionnaire responses indicated that employees at the 15 job sites had frequent opportunities to interact with others throughout the work day. Employees had contact with one another more than once a day on 93% of the job sites, with supervisors on 80% of the job sites, and with the public on 67% of the job sites. Company sponsored social activities were also found to be available on all of the job sites. One social activity was provided by three of the companies, two by one company, three by seven companies, four by two companies, and five activities by two companies. The number of supported employees who participated on company sports teams and who attended staff meetings was larger than the number of co-workers who were involved in these activities. Co-workers were found to recognize employee birthdays, weddings, illnesses, and family deaths with a card or gift more frequently than the supported employees. Table 5 describes the opportunities available for social participation reported by company supervisors and participation reported by supported employees and co-workers.

Supported employees and co-workers were found to have the opportunity to interact with the same employees during work hours over extended periods of time.

Supervisors reported that employees depended upon each other to complete their job duties either often or all the time on 87% of the job sites. Low turnover rates below

Table 5

Opportunity and Participation in Company Sponsored Social Activities by Supported Employees and Co-Workers

	Job Site Opportunity (n = 15)	Supported Employee Participation (n = 15)	Co-Worker Participation (n = 15)
Organized Sports Teams	33%	27%	13%
Regularly Scheduled Staff Meetings	80%	67%	53%
Recognition of Employee Birthdays, Weddings, etc., with Card, Gift	67%	60%	73%
Recognition of Employee Family Deaths with Card, Flowers, etc.	53%	20%	40%
Recognition of Employee Illness with Card, Flowers, Gift	53%	47%	53%

50% were reported for employees on 87% of the job sites and for supervisors on 93% of the job sites. Survey response data by supervisors indicated that employees take breaks together at least once a week on 60% of the job sites. Sixty-seven percent of the supported employees and 13% of the co-workers reported that they would like to take breaks with others more often than they do.

Supervisors' responses on the Job Site Social Activity Questionnaire revealed that employees got along okay at 40% of the job sites, liked each other a lot at 40% of the job sites, and were close friends at 20% of the job sites. Responses on the Employee Social Activity Questionnaire revealed that seventy-three percent of the supported employees reported that some of the other employees were their friends while 53% of the co-workers reported similar feelings. The majority of the supported employees reported that they liked each other a lot (53%) while co-workers more often responded that they got along okay (60%) with the other employees. A desire to have more friends at work was reported by 47% of the supported employees and 40% of the co-workers. Table 6 provides a listing of several survey items which describe the social interaction patterns of supported employees and co-workers. More than half of

the supported employees and co-workers reported that they do not get together after work hours with the other employees that they work with.

Table 6

SUPPORTED EMPLOYEE AND CO-WORKER
SOCIAL PARTICIPATION AT THE JOB SITE

1. How do you generally feel about the people that you work with?

	Don't Care for Them	Indifferent	Get Along Okay	Like Each Other a Lot	Close Friends
Supported Employees	0	0	13%	53%	33%
Co-workers	0	0	60%	33%	7%

2. How often do you have contact with someone else?

	Never	Less than Once a Week	More than Once a Week	Once a Day	More than Once a Day
Supported Employees	0	0	0	7%	93%
Co-workers	0	7%	0	0	93%

3. How much does getting your job done depend upon the work of someone else?

	Never	Seldom	Sometimes	Often	All the Time
Supported Employees	13%	20%	20%	7%	40%
Co-workers	27%	0%	40%	7%	27%

4. How often do you take breaks or eat lunch with someone else?

	Never	Less than Once a Month	More than Once a Month	Once a Week	More than Once a Week
Supported Employees	13%	0	13%	20%	53%
Co-workers	33%	0	0	0	67%

5. How often do you get together after work hours with other people with whom you work?

	Never	Less than Once a Month	More than Once a Month	Once a Week	More than Once a Week
Supported Employees	60%	7%	7%	13%	13%
Co-workers	73%	0	13%	13%	0

Discussion

This study described the social interactions of workers with and without mental retardation who were employed at competitive job sites. The findings suggest that supported employees and their co-workers do not differ in the number, type, and content of interactions they participate in during work hours. The results of this study show that one of the critical factors which distinguish the social interactions of supported employees and co-workers is the work or breaktime activity in which they participate. Co-workers were found to interact more frequently during breaktime than the supported

employees and this difference was found consistently across all observation categories. These results support and extend the previous research which found no difference in frequency of interactions between workers with and without disabilities (Chadsey-Rusch, Gonzalez, & Tines, 1988; Lignugaris/Kraft, Rule, Salzberg, & Stowitschek, 1986; Lignugaris/Kraft Salzberg, Rule, & Stowitschek, 1988; Storey, Rhodes, Sandow, Loewinger, & Petherbridge, 1988; Test, Farebrother, & Spooner, 1988).

Most of the job sites involved in this study offered frequent opportunities for employee interactions through task dependent job duties and company sponsored activities. An important finding of this study is that supported employees do participate in the social interactions and activities that are available during work with the same frequency as their co-workers. The supported employees observed in this study appeared to experience a sense of community and belonging at their job sites, but did not seem to be a part of the workplace friendship network.

The lack of interactions that supported employees experienced at breaktime indicates that they are not participating in activities which would tend to promote the development of friendships in the workplace (Pogrebin, 1987). Interestingly, only 33% of the supported employees reported that they were close friends with co-workers as compared to 7% of the co-workers. These differences may be due to a number of variables. One reason may be that supported employees have inaccurately perceived and overestimated the intensity of their relationships. Secondly, perhaps the co-workers do not share the same mutual feelings with the supported employees. Another possibility is that supported employees may have developed friendships with co-workers other than those who participated in the study. Finally, the low percentage of co-workers who reported having close friends may indicate that the workplace is not the primary source of close friendships for most people. However, almost half of the supported employees stated that they would like to have more friends at work. In addition, 67% of the supported employees and 13% of the co-workers stated that they would like to take breaks with others more often than they do.

The findings from this study have major implications for employment specialists who are providing supported employment services. The data clearly show the need to

assess the type and content of social interactions that occur both during work and break when completing a job analysis of the work environment. It is likely that supported employees must participate in a variety of social interactions beyond those essential for their work performance if they are going to be equally involved in the work culture.

Supported employees need to be trained to interact socially during break in the same way that social skills are taught during work hours. The employment specialist's role as trainer advocate is equally important during breaktime as it is at work. Frequently, employment specialists perceive breaktime as "their break" from training and either leave the job site or participate in other activities. Co-workers may be hesitant to interact with the supported employee in the absence of the trainer who is available to assist with social interactions during work hours. In addition, supported employees may lack the skills to initiate or participate in the social interactions that occur during break. Effective intervention strategies that can be utilized by the employment specialist include: 1) providing social skills instruction (Breen, Haring, Pitts-Conway, & Gaylord-Ross, 1984; Chadsey-Rusch, J., 1986; Shafer, Brooke, & Wehman, 1986), 2) modeling appropriate interactions (Moon, Goodall, Barcus, & Brooke, 1986), 3) facilitating co-worker interactions (Nisbet & Hagner, 1988; Shafer, Tait, Keen, & Jesilowski, 1989; Stainback & Stainback, 1987), and 4) advocating on behalf of the supported employee (Barcus, Brooke, Inge, Moon, & Goodall, 1987; Moon, Inge, Wehman, Brooke, & Barcus, in press).

Several limitations of this study may affect the generalizations that can be made from the results. First, all of the supported employees who participated in this study are considered successfully employed as indicated by an average length of employment of five and a half years. Observations of supported employees who have been employed for shorter periods of time or who require trainer intervention may yield different results. Second, all of the participants of this study had a label of mental retardation as a primary diagnosis. It would be interesting to determine if supported employees with other disabilities display the same patterns of interactions with co-workers as the supported employees in this study. Third, all of the supported employees in this study

had been placed with the supported competitive employment or individual placement model. It is possible that supported employees participating in enclaves or mobile crews experience very different patterns of social interactions (Kregel, Wehman, & Banks, in press).

A fourth limitation of this study may be observer reactivity. An attempt was made to minimize reactivity by having the observers become familiar at the job site. Data collectors visited the work area and interacted with employees at least once prior to the beginning of the study. In addition, observers were present in the work and break areas for at least ten minutes prior to starting each observation. Observers made every attempt to be unobtrusive at the job site by keeping tape recorders hidden, folding data sheets in their hand, and wearing clothing appropriate for the environment.

Implications for Future Research

The results of this study show that supported employees participate equally in the social interactions that occur during work hours. However, they tend to be socially isolated during breaktime. Additional studies with a larger sample that are designed to determine how discrepancies between supported employee and co-worker social participation at break affects job retention and job satisfaction would be useful for improving supported employment service delivery.

Further research is needed to develop instrumentation that can be used to assess the social interactions occurring within the workplace. Such an instrument could assist in identifying an appropriate job match of consumer skills and interests to job requirements for employment success (Chadsey-Rusch & Rusch, 1988). However, at the present time, no such instrument is available. Equally important is an instrument that can be used to monitor a supported employee's participation in the social interactions at the job site during follow along. A monitoring instrument would be useful as a proactive tool to identify fluctuations in interactions over time and provide employment specialists with data-based evidence that intervention may be necessary.

Finally, further research is needed to develop strategies for assessing supported employees' desired levels of social and physical integration. The ability to reliably obtain this information is essential for making placement decisions and monitoring

consumer satisfaction for the duration of employment. Supported employment was based on the assumption that persons with severe disabilities need an individualized service delivery approach in order to participate successfully in integrated employment situations. The individualized nature of the model has been most frequently realized in the areas of skill training and support services. Systematic strategies to assess the compatibility between the social opportunities available at the job site and the personality of the supported employee need to be developed in order to evaluate the quality and effectiveness of the supported employment placement.

According to Klein & D'Aunno (1986), participation in the friendship network at the workplace is an important benefit of work that provides an employee with a stronger self-concept, intrinsic gratification, and increased social support. It is clear that more research is needed to develop a systematic method of assessing employee social participation and personal satisfaction as well as strategies to increase supported employee/co-worker compatibility so that supported employees can experience all of the advantages that integrated employment provides.

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Quality Indicators of Successful Vocational Transition Programs

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Increasing amounts of attention have recently been focused on local, state, and federal policies that facilitate the successful movement of youth with disabilities from school settings to adult settings (Wehman, Moon, Everson, Wood Barcus, 1988). Transition, as this movement of youth has been aptly titled, had its beginnings in the 1950's and 60's (Kolstoe & Frey, 1965) and has recently been highlighted by Will (1984) as she described "bridges" to employment. Halpern (1985) later expanded the concept to include residential and community functioning as areas in which transition should occur. Since these two early works, there has been a proliferation of literature that relates to transition. For the purposes of this paper the following definition of transition will be used:

> Vocational transition is a carefully planned process, which may be initiated either by school personnel or by adult service providers, to establish and implement a plan for either employment or additional vocational training of a handicapped student who will graduate or leave school in three to five years; such a process must involve special educators, vocational educators, parents and/or the student, an adult service system representative, and possibly an employer (Wehman, Kregel, Barcus, 1985).

The literature to date has focused primarily on the presentation of transition models, descriptions of characteristics and issues presumed to be associated with comprehensive transition planning, and step by step guidelines for implementing individualized student transition planning (e.g., Wehman, Moon, Everson, Wood, & Barcus, 1988). The current literature has been most effective in riveting attention of federal and state policy makers on the need for comprehensive transition planning (Bates, Suter, Poelvoorde, 1986; Everson, 1988; Rusch & Phelps, 1987; Watson, 1987; Will, 1984). There seems to be some agreement within the literature relating to the processes (e.g., an individualized transition planning meeting for each student, etc.), participants (e.g., special education teachers, vocational rehabilitation counselors,

parents, etc.), and requisite components (e.g., interagency transition agreements, availability of adult service programs, etc.) that should presumably come together to ensure a student's effective transition. Unfortunately, this agreement has, to date, been based almost exclusively in theory with no empirical evidence that the decisions derived from the theory in fact enhance transition. It is unquestionably very risky to base transition policies and procedures on ideas of what is important when those ideas have not been empirically validated. Fiscal and personnel resources should not be directed toward transition policies and procedures which have, at best, weak social validation and certainly no empirically based outcome validation. Two investigations are clearly needed to provide an empirical basis for transition policy and program development. First, a formally validated consensus about which transition elements (for the purpose of this paper an "element" refers to people, policies, procedures, and organizations that are in any way related to transition) are most important in determining how to structure programs to bring about better vocational outcomes for students who exit school should be obtained. That is, field personnel must be asked which people, policies, procedures, and organizations are important to the successful transition of youth from school to work. Second, this listing needs to be empirically evaluated to determine the actual relationship of instrument items to student vocational outcomes.

The purpose of this study was to conduct a survey to derive a consensus to formally validate field personnel's perceptions about the relative importance of various transition elements that are presumed to lead to effective vocational transition; the vocational outcome evaluation will be the focus of a separate evaluation. Three research questions were asked:

1. How do personnel involved in transition planning and implementation rate various elements presumed to be important to transition of youth from school to work?

2. Do rater characteristics effect rating of importance of various transition elements?

3. Do ratings by personnel indicate an underlying structure of transition elements?

To address these three questions, professional literature and state/local policies were reviewed to generate a listing of elements presumed necessary for successful transition from school to work. The statements, or indicators, focused on special education services, parent and consumer issues' interagency planning processes, and adult services. The indicators were presented to parent/family members, university personnel, state level adult agency personnel, local adult agency personnel and state/local adult agency personnel.

Method

Subjects

Three hundred and twenty eight (328) individuals concerned with vocational transition were identified for participation in the study and were mailed a survey. These individuals represented five groups: (a) parent/family (n=72) , (b) university personnel (n=36) , (c) state level adult agency personnel (n=77) , (d) local adult agency personnel (n=76) , and (e) education personnel (n=67). One hundred and fifty four usable surveys were returned across the five groups. The overall response rate was 47%. Table 1 portrays the response rates across groups. There were no statistically significant differences in response rates among groups.

Table 1

Response Rates Across Groups of Participants

Respondent Group	N	Number Returned	Percent Returned*
Parent/Family	72	28	38.9
University	36	21	58.3
State Adult Service	77	39	50.7
Local Adult Service	76	32	42.1
Education	67	34	50.8
Total	328	154	47.0

* rounded

X^2 = .26: N.S.

In an attempt to obtain a heterogeneous subject pool, a priori subject selection criteria were kept to a minimum. The major criterion for selection of the participants was visibility in the field of transition. Visibility included being a) an author of a transition paper, b) a parent of a transition aged son or daughter, c) principal investigator of a

transition project, d) state or local policy leader, or e) recipient or provider of transition training. Table 2 presents demographic information relating to the individuals who returned the surveys. The respondents were varied in age and had diverse educational levels. Respondents also had a wide range of experiences related to transition. Over half of the respondents had provided training or technical assistance (68.8%) , received training or technical assistance (62.3%) , and/or participated in transition policy development (59.7%) . In view of this post hoc analysis, the respondent group represented well qualified individuals who were well versed in transition issues.

Table 2

Demographic Profile of Respondents

Age	N	Respondents*
26 - 35	42	27.2
36 - 45	75	48.7
46 & above	28	18.1
Education		
High School - Associate	21	13.6
Bachelors	32	20.7
Masters	52	33.8
Post Masters Credit	20	13.0
Doctorate	24	15.6
No Response	5	3.2
Previous Experience		
Attended ITP Meeting	75	48.7
Published Material	43	27.9
Provided Training or TA	106	68.8
Received Training or TA	96	62.3
Directed a Transition Program	60	47.2
Participated in Transition Policy Development	92	59.7
Other	16	10.4

* rounded

Instrument and Procedure

A 130 item instrument listing indicators of successful transition processes, the Transition Effectiveness Instrument (TEI) , was developed through a series of steps. First, an exhaustive review of literature was conducted to generate items for potential survey inclusion. Next, a panel of transition specialists from the Rehabilitation Research and Training Center on Supported Employment was convened to (a) review the list generated from the literature, (b) add additional items, (c) remove duplicate items and/or combine like items, and (d) arrive at a final draft listing of items. The items were then grouped as primarily relating to special education, parent and consumer, interagency

planning, or adult service delivery processes (the grouping was done for analysis purposes only - respondents were blind to the groups). Finally, the draft listing of items was reviewed and modified by an external expert well versed in transition issues. Figure 1 contains the final indicators, grouped into the four categories. From the final listing of indicators, three versions of the TEI were generated by randomly arranging indicators. This was done to control for order effects, including possible participant fatigue brought on by such a large number of items. As an additional safeguard against fatigue, a three point rating scale (as opposed to a more diverse scale) was utilized. Each participant was asked to rate each item as not important, somwhat important, or very important by circling a number to the left of the indicator statement. In addition to the 130 indicators, a demographic profile form was developed to assess the characteristics of the participants. Participants were asked questions relating to age, gender, educational level, employment characteristics, prior involvement in school to work transition processes.

Each of the 328 potential participants received one of the three versions of the survey with a cover letter. The cover letter explained the purpose of the survey and specified a return date. The participants were asked to read each indicator carefully and decide whether they believed the indicator to be not important, somewhat important, or very important for successful transition from school to work programs for youth with disabilities. Only one response per indicator was allowed. A self-addressed stamped envelope was provided for the return of the survey. A second survey was sent to each participant from whom no survey was received one week after the specified return date.

Data Analysis

All survey responses were entered from remote terminal to an IBM mainframe. Analyses were completed using the Statistical Analysis System (SAS, 1985) . To answer the first research question, mean ratings were computed on the entire group of

Figure 1

A. Special Education Services

1. Individualized Transition Plans (ITPs) are written for students in special education programs.
2. Individual transition planning meetings are conducted for all students in special education programs.
3. Employment outcomes are included in Individualized Education Plans (IEPs) and ITPs.
4. Vocational training outcomes are included in IEPs/ITPs.
5. Vocational training occurs in real community job sites.
6. Students participate in community based instruction in groups of four or less.
7. Students are placed into paid employment prior to graduating from school.
8. Students in special education participate in regular vocational education programs.
9. Longitudinal vocational goals and objectives are written in the IEP before students reach the secondary grades.
10. Follow-up studies of previous students in special education programs are routinely conducted at the local level.
11. Employment specialists provide services to students in special education programs.
12. One or more professionals are identified to conduct transition planning at the local level.
13. Task analytic assessment and instruction are used in all instructional (domain) areas.
14. Instructional programs are written for each goal in student's IEP.
15. Data corresponding to instructional programs are graphed and used to make instructional decisions.
16. Ecological assessments are the basis of individualized programming.
17. Students in special education programs receive formal vocational evaluations after age 14.
18. Vocational evaluations include informal techniques such as task analytic and situational assessments.
19. Related services (i.e., physical, occupational, and speech therapy) are provided in the community and classroom through an integrated model.
20. Rehabilitation technology, including the use of assistive devices, is used where appropriate in the classroom and community.
21. A transition liaison is designated by the school to initiate ITP planning meetings and to monitor the completion of goals and objectives.
22. Detailed written schedules are in place for building level personnel, including a formal accounting of time spent in the classroom and community.
23. Detailed written schedules are in place for each special education class, including a formal accounting of time spent in the classroom and community.
24. Detailed written schedules are in place for each special education student, including a formal accounting of time spent in the classroom and community.
25. There is a formal written policy regarding liability and safety for students and staff participating in community based training and employment.
26. All students receive community based instruction on at least one IEP goal other than a vocational goal.
27. Within the special education program each classroom has a separate vocational training budget including transportation, supplies, and other discretionary funds.
28. Within the special education program there is a separate vocational training budget including transportation, supplies, and other discretionary funds.
29. Up-to-date medical records are contained in each student's file.
30. Staff are routinely given inservice training on current vocational training and employment strategies.
31. Programs are staffed by nonpersonnel staff such as volunteers, peer tutors, and university students.
32. The special education program has discretionary money from federal, state, or local level to supplement the local program's efforts.
33. There is a business advisory committee that assists special education staff in designing vocational training and employment programs.
34. All special education students have access to school counseling services.
35. There are written instructional programs designed to build work rate and quality in vocational training programs and employment.
36. Prior to being placed in paid employment, students receive training in more than one community based job site per school year.
37. There are written instructional programs designed to increase generalization and maintenance of job skills, including the fading of staff assistance.
38. IEP goals include training of community survival skills (e.g., transportation training, restaurant use, and vending machine use).
39. IEP goals include training on age-appropriate social skills in the school as well as community.
40. The local school system is able to identify how Carl D. Perkins monies are used for vocational training for special education programs.
41. The local school system uses Job Training Partnership Act (JTPA) funds to supplement vocational training and employment efforts for students in special education programs.
42. The local school system is vendored as a service provider of vocational rehabilitation services.
43. The special education classes are physically integrated in regular age-appropriate schools.

44. Students in special education participate in school-wide functions .(e.g., dances, lunch, pep rallies, and other extracurricular activities) with nondisabled peers.

45. Special education student travel time to and from school approximates that of regular education students.

46. School-sponsored vocational training and employment takes place during summer months.

47. Prior to graduation, students in special education programs are able to participate in nonschool-sponsored employment and job training.

B. Parent and Consumer Issues

1. There is planned dissemination to parents of written materials describing available adult service options.

2. Adolescents receiving special education services and parents have access to support groups.

3. Parents actively participate in development of IEP/ITP and attend IEP/ITP meetings.

4. Students actively participate in development of IEP/ITP and attend IEP/ITP meetings.

5. Parents sign release and consent forms which authorize sharing of information.

6. Student records are regularly reviewed with parents, guardians, or other significant family members.

7. The school has designated personnel to work with families on home and community training programs.

8. The school has established linkages with parent and consumer advocacy groups.

9. Parent and family members regularly visit classroom and community sites.

10. There is a systematic process of communication (other than IEP) between home and school.

11. Parents participate in implementation of one or more IEP goals at home, if indicated in IEP.

12. Family preferences are reflected in IEP/ITP goals and objectives.

13. Student preferences are reflected in IEP/ITP goals and objectives.

C. Interagency Planning Process

1. Parents regularly attend ITP meetings.

2. Students regularly attend ITP meetings.

3. Vocational education teachers regularly attend ITP meetings.

4. Adult service case managers regularly attend ITP meetings.

5. Rehabilitation counselors regularly attend ITP meetings.

6. A comprehensive local community needs assessment of school and adult service has been conducted.

7. An interagency community planning team has been organized to plan transition procedures and timelines for the locality.

8. A building level planning team has been organized to plan transition procedures and timelines.

9. A local, formal interagency agreement that addresses transition planning has been developed and implemented between schools, vocational rehabilitation, and some adult service agency such as the Department of Mental Health and Mental Retardation.

10. The local interagency agreement defines procedures for release of records between school and adult agencies.

11. The local interagency agreements defines procedures for the physical transfer of records and information from the school to the adult service providers.

12. The local interagency agreement defines roles and responsibilities of school and adult agencies.

13. The local interagency agreements defines procedures for the transfer of responsibility for ITP goal implementation from the school system to adult service providers during the students' final year in school.

14. The local interagency agreement defines eligibility procedures for each agency or provider participating in the agreement.

15. The local interagency agreement defines procedures for referral of services for each agency or provider participating in the agreement.

16. The local interagency agreement specifies local comprehensive long range plans for developing new services or changing existing services.

17. The local interagency agreement includes a formal plan for implementing the agreement.

18. The local interagency agreement includes a formal plan for allocation of staff from each agency.

19. The local interagency agreement identifies a liaison from each agency.

20. The local interagency agreement includes plans for funding and cost sharing.

21. The local interagency agreement includes a formal plan for roles and responsibilities of participating agencies for the transition of services specified in the agreement.

22. The local interagency agreement includes timelines for implementation of transition services as specified in the agreement.

23. Local school personnel are aware of the presence of a state interagency task force for transition planning.

24. The local interagency agreement includes a formal plan for cross agency inservice.

25. The local interagency agreement includes procedures for evaluating ITPs.

26. The ITP is part of the IEP.

27. The state legislature mandates ITPs.

28. The ITP planning team has access to a comprehensive document describing all adult services that are locally available.

29. The ITP team has written procedures for specifying the development and implementation of ITPs.

30. The ITP team updates ITPs between annual ITP meetings.

31. There are procedures for formally transmitting aggregate ITP implementation data to local community planning teams.

32. There is a public awareness program disseminating information on local transition planning efforts to businesses.

33. There is a public awareness program disseminating information on local transition planning efforts for other non-business community groups (i.e., recreational and non-disability housing services).

34. The local interagency agreement includes a mission statement defining expected student outcomes.

35. The local interagency agreement mission statement defines student outcomes as paid employment in community sites for all students.

36. The local interagency agreement identifies a target population to receive formal transition planning.

37. Local personnel have participated in conferences on transition.

D. Adult Service Options

1. Supported employment individual placement programs are available in the community.

2. Supported employment enclaves are available in the community.

3. Supported employment work crews are available in the community.

4. Supported employment entrepreneurial programs are available in the community.

5. The locality has specialized transportation for people with disabilities.

6. The community has access to public transportation or accessibility to regular buses.

7. Day treatment programs are available in the community.

8. Day activity centers are available in the community.

9. Sheltered workshops are available in the community.

10. Local case managers are available for transition age youth.

11. Self advocacy groups are active in the community.

12. Independent living centers (e.g., transitional living centers) are available in the community.

13. Leisure programs are available in the community. Community leisure programs are integrated.

14. Local community colleges provide classes and other post-secondary education programs for young adults with developmental disabilities.

15. Transitional employment placement and training programs are available in the community for young adults with mild and moderate disabilities.

16. Employment programs have policy of priority to job placement and training for school graduates with special needs.

17. Employment programs provide ongoing support to persons placed in supported employment by the school.

18. Employment programs communicate regularly with schools as to the employment outcomes of graduates and assist schools with follow-up information.

19. Employment programs communicate to schools job opportunities available to school leavers with disabilities.

20. Employment programs speak regularly to school parent groups about the employment options available to school leavers.

21. Job and task analyses are completed by employment programs as part of job placement and training.

22. Systematic instruction and training are utilized by employment programs to workers placed in position to develop quality, quantity, and interaction skills.

23. Technology, including assistive devices, are supplied to the worker as required.

24. Regular data are collected by employment programs as to worker quality, quantity, reliability, safety, and integration.

25. Regular feedback is secured by employment programs from employers regarding worker performance.

26. Employment programs communicate regularly with families regarding worker progress.

27. Employment programs communicate regularly with case managers and rehabilitation counselors regarding worker progress.

28. Adult services allocate a case manager to the student prior to graduation.

29. Adult services have a written policy giving priority to paid integrated employment for school leavers.

30. Adult services have a written policy of prioritizing their services to transition-aged persons with disabilities.

31. Adult services advocate for paid and integrated employment to parents and caregivers of students with disabilities.

32. Vocational rehabilitation counselors base individual written Rehabilitation Plan (IWRP) on IEP/ITP information.

33. Employment and training programs develop employment plans from the basis of school vocational assessment and ITP/IEP.

returned surveys and the indicators were ranked according to their means. The second research question was addressed with two analyses. First, using the a priori groupings described above (i.e., special education, parent and consumer interagency planning, and adult service delivery processes) a sub-scale score was created and Kruskal-Wallis tests were conducted to determine any differences in mean sub-scale ratings by each of the respondent groups and between demographically dissimilar groups (Zar, 1984). The mean sub-scale ratings for each individual were also rank ordered. Kruskal-Wallis tests were then conducted to determine any differences in sub-scale rankings by each of the respondent and between demographically dissimilar groups. Analysis for the third research question was completed by using principal factor analysis procedures with promax rotation to determine underlying structure of the indicators (Harman, 1976)

Results

One hundred and fifty four usable surveys were returned representing a 47% response rate. The mean responses and standard deviations for each indicator are ranked in Table 3. As expected, the means fell generally in the "somewhat important" to the "very important" (x range = 1.85 - 2.93).

The one exception was the indicator. Programs are staffed by nonpersonnel staff such as volunteers, peer tutors, and university students. Respondents found this to be the least important indicator (x = 1.85; SD = .70). Also rated relatively unimportant were items relating to the presence of day treatment programs (x = 2.03; SD = .77), day activity centers (x = 2.01; SD = .79) , and Sheltered workshops (x = 2.05; SD = .76). Two indicators of fiscal structure, relating to separate classroom vocational budgets and the vendoring of school system programs, were also felt to be relatively unimportant (x = 2.05; SD = .76 and x = 2.09; SD = .74, respectively) . The state mandated ITP's also were described as relatively unimportant (x = 2.23; SD = .77).

The presence of supported employment individual placement program availability was the highest rated indicator (x = 2.93; SD = .26). Parental (x = 2.90; SD = .32) and student involvement (x = 2.90; SD = .35) in the IEP process were felt to be of utmost

importance. Provision of training in community survival skills (x = 2.88; SD = .35) and vocational training at real community job sites (x = 2.87; SD = .37) were also highly valued.

Analyses to assess group differences in responses were completed as follows. First, responses were assigned a value of 1, 2 or 3 (not important, somewhat important, very important, respectively). A total score of all indicators was calculated for each individual. Additionally, sub-scale scores were computed using the a priori indicator groupings. An analysis of means and indicator group rankings by the respondent categories of gender (male-female), age (26-35, 36-45, over 45), education level (high school or associate degree, bachelors degree, masters degree, post masters credit, and doctoral degree), and personnel type (parent/family, university, state adult service, local adult service, and education personnel) were then performed using the Kruskal-Wallis test (chi-square approximation).

The Kruskal-Wallis analyses for the total and sub-scale for each of the demographic groupings are presented in Table 4. The data indicate, with one exception, consensus about the importance (in absolute terms) of the items and sub-categories. There were significant differences of the importance of adult service processes based on education level and personnel type. Doctoral level personnel rated adult service processes less important ($p. < .05$) than did personnel with an associate agree or less, bachelors and masters degree holders, and personnel who had post masters graduate credit.

How the respondents ranked special education, parent/consumer, interagency planning, and adult service processes relative to each other (i.e., rank ordering the sub-scales by mean score of items on that sub-scale) was also assessed. These data, presented in Table 5, again show consensus among demographically dissimilar groups with several exceptions. The parent/consumer processes sub-scale was ranked differentially according to education ($p. < .05$) . Mann Whitney U Tests revealed that personnel with doctorates and personnel with no higher education ranked parent/ consumer indicators significantly higher than personnel with bachelors degrees. Adult service processes were also ranked significantly different by personnel type ($p. < .05$)

Table 3

Mean Ratings of TEI Indicators

(N = 154)

Indicator	X	SD
Supported employment individual placement programs are available in the community.	2.93	.26
Parents actively participate in development of IEP/ITP and attend IEP/ITP meetings.	2.90	.35
Student preferences are reflected in IEP/ITP goals and objectives.	2.90	.32
IEP goals include training of community survival skills (e.g., transportation training, restaurant use, and vending machine use).	2.88	.35
Vocational training occurs in real community jobs.	2.87	.36
Regular feedback is secured by employment programs from employers regarding worker performance sites.	2.87	.37
Technology, including assistive devices, are supplied to the worker required.	2.87	.37
Transitional employment placement and training programs are available in the community for young adults with mild and moderate disabilities.	2.86	.37
Employment programs communicate regularly with case managers and rehabilitation counselors regarding worker progress.	2.86	.37
Individualized Transition Plans (ITPs) are written for students in special education programs.	2.86	.37
Staff are routinely given inservice training on current vocational training and employment strategies.	2.86	.36
IEP goals include training on age-appropriate social skills in the school as well as community.	2.86	.40
Parents regularly attend ITP meetings.	2.85	.38
The ITP planning team has access to a comprehensive document describing all adult services that are locally available.	2.85	.39
Individual transition planning meetings are conducted for all students in special education programs.	2.84	.40
Employment programs provide ongoing support to persons placed in supported employment by the school.	2.83	.33
Rehabilitation technology, including the use of assistive devices, is used where appropriate in the classroom and community.	2.82	.42
There is planned dissemination to parents of written materials describing available adult service options.	2.82	.40
Systematic instruction and training are utilized by employment programs to workers placed in position to develop quality, quantity, and interaction skills.	2.81	.44
Students in special education participate in school-wide functions (e.g., dances, lunch, pep rallies, and other extracurricular activities) with nondisabled peers.	2.80	.46
Local case managers are available for transition age youth.	2.78	.48
Employment programs communicate to schools job opportunities available to school leavers with disabilities.	2.78	.46
Adult services allocate a case manager to the student prior to graduation.	2.77	.45
Vocational training outcomes are included in IEPs/ITPs.	2.76	.51
Regular data are collected by employment programs as to worker quality, quantity, reliability, safety, and integration.	2.76	.47

Indicator	X	SD
The ITP is part of the IEP.	2.76	.54
The local interagency agreement defines roles and responsibilities of school and adult agencies.	2.76	.45
There is a systematic process of communication (other than IEP) between home and school.	2.75	.47
The local interagency agreement includes a formal plan for roles and responsibilities of participating agencies for the transition of services specified in the agreement.	2.75	.44
Employment programs communicate regularly with schools as to the employment outcomes of graduates and assist schools with follow-up information.	2.74	.44
Employment programs communicate regularly with families regarding worker progress.	2.74	.48
A local, formal interagency agreement that addresses transition planning has been developed and implemented between schools, vocational rehabilitation, and some adult service agency such as the Department of Mental Health and Mental Retardation.	2.74	.48
Students actively participate in development of IEP/ITP and attend IEP/ITP meetings.	2.73	.47
One or more professionals are identified to conduct transition planning at the local level.	2.73	.47
All special education students have access to school counseling services.	2.73	.51
There are written instructional programs designed to increase generalization and maintenance of job skills, including the fading of staff assistance.	2.73	.47
Employment outcomes are included in Individualized Education Plans (IEPs) and ITPs.	2.73	.52
Job and task analyses are completed by employment programs as part of job placement and training.	2.72	.46
The special education program has discretionary money from federal, state, or local level to supplement the local program's efforts.	2.72	.50
Parents sign release and consent forms which authorize sharing of information.	2.71	.52
The local interagency agreements define procedures for the transfer of responsibility for ITP goal implementation from the school system to adult service providers during the students' final year in school.	2.71	.53
Employment programs speak regularly to school parent groups about the employment options available to school leavers.	2.71	.51
Leisure programs are available in the community; community leisure programs are integrated.	2.70	.51
The local school system is able to identify how Carl D. Perkins monies are used for vocational training for special education programs.	2.69	.50
The special education classes are physically integrated in regular age-appropriate schools.	2.69	.57
Independent living centers (e.g., transitional living centers) are available in the community.	2.69	.53
There is a public awareness program disseminating information on local transition planning efforts to businesses.	2.69	.49
The local interagency agreement includes timelines for implementation of transition services as specified in the agreement.	2.68	.51
Parents participate in implementation of one or more IEP goals at home, if indicated in IEP.	2.68	.52
Adult service case managers regularly attend ITP meetings.	2.68	.48

Indicator	X	SD
Related services (i.e., physical, occupational, and speech therapy) are provided in the community and classroom through an integrated mode.	2.68	.53
Instructional programs are written for each goal in student's IEP.	2.68	.53
Employment specialists provide services to students in special education programs.	2.68	.53
There is a formal written policy regarding liability and safety for students and staff participating in community based training and employment.	2.67	.56
Follow-up studies of previous students in special education programs are routinely conducted at the local level.	2.67	.51
The school has established linkages with parent and consumer advocacy groups.	2.67	.48
Rehabilitation counselors regularly attend ITP meetings.	2.66	.50
Vocational evaluations include informal techniques such as task analytic and situational assessments.	2.66	.55
The local interagency agreement defines procedures for referral of services for each agency or provider participating in the agreement.	2.66	.50
Vocational rehabilitation counselors base Individual Written Rehabilitation Plan (IWRP) on IEP/ITP information.	2.65	.50
All students receive community based instruction on at least one IEP goal other than a vocational goal.	2.65	.51
There are written instructional programs designed to build work rate and quality in vocational training programs and employment.	2.64	.49
The local interagency agreement includes a formal plan for implementing the agreement.	2.64	.52
Employment programs have policy of priority to job placement and training for school graduates with special needs.	2.63	.56
The local interagency agreement includes plans for funding and cost sharing.	2.63	.55
A transition liaison is designated by the school to initiate ITP planning meetings and to monitor the completion of goals and objectives.	2.63	.55
Up-to-date medical records are contained in each student's file.	2.63	.50
Students regularly attend ITP meetings.	2.63	.55
An interagency community planning team has been organized to plan transition procedures and timelines for the locality.	2.62	.55
Vocational education teachers regularly attend ITP meetings.	2.62	.55
The ITP team has written procedures for specifying the development and implementation of ITPs.	2.62	.53
The local interagency agreement identifies a liaison from each agency.	2.61	.55
Within the special education program there is a separate vocational training budget including transportation, supplies, and other discretionary funds.	2.61	.57
Adolescents receiving special education services and parents have access to support groups.	2.61	.54
The school has designated personnel to work with families on home and community training programs.	2.60	.51
The local interagency agreement includes a mission statement defining expected student outcomes.	2.60	.55
Adult services advocate for paid and integrated employment to parents and caregivers of students with disabilities.	2.59	.59
Employment and training programs develop employment plans from the basis of school vocational assessment and ITP/IEP.	2.59	.58

Indicator	X	SD
Students in special education programs receive formal vocational evaluations after age 14.	2.58	.60
Prior to graduation, students in special education programs are able to participate in nonschool-sponsored employment and job training.	2.58	.60
The local interagency agreement defines eligibility procedures for each agency or provider participating in the agreement.	2.58	.57
Local personnel have participated in conferences on transition.	2.58	.54
The locality has specialized transportation for people with disabilities.	2.57	.62
Supported employment enclaves are available in the community.	2.57	.54
Family preferences are reflected in IEP/ITP goals and objectives.	2.57	.60
A comprehensive local community needs assessment of school and adult service has been conducted.	2.57	.55
The local interagency agreements define procedures for the physical transfer of records and information from the school to the adult service providers.	2.56	.60
The local interagency agreement defines procedures for release of records between school and adult agencies.	2.55	.61
Student records are regularly reviewed with parents, guardians, or other significant family members.	2.55	.59
Students in special education participate in regular vocational education programs.	2.54	.58
Local community colleges provide classes and other post-secondary education programs for young adults with developmental disabilities.	2.53	.63
Supported employment work crews are available in the community.	2.52	.62
The ITP team updates ITPs between annual ITP meetings.	2.52	.55
There is a business advisory committee that assists special education staff in designing vocational training and employment programs.	2.52	.55
The local school system uses Job Training Partnership Act (JTPA) funds to supplement vocational training and employment efforts for students in special education programs.	2.51	.59
Task analytic assessment and instruction are used in all instructional (domain) areas.	2.50	.60
Self advocacy groups are active in the community.	2.50	.60
Students are placed into paid employment prior to graduating from school.	2.50	.64
Adult services have a written policy giving priority to paid integrated employment for school leavers.	2.49	.57
There is a public awareness program disseminating information on local transition planning efforts for other non-business community groups (i.e., recreational and non-disability housing services).	2.49	.62
Longitudinal vocational goals and objectives are written in the IEP before students reach the secondary grades.	2.48	.66
Local school personnel are aware of the presence of a state interagency task force for transition planning.	2.48	.64
The local interagency agreement specifies local comprehensive long range plans for developing new services or changing existing services.	2.48	.59
There are procedures for formally transmitting aggregate ITP implementation data to local community planning teams.	2.48	.59
The community has access to public transportation or accessibility to regular buses.	2.47	.66
Detailed written schedules are in place for each special education student, including a formal accounting of time spent in the classroom and community.	2.46	.61

Indicator	X	SD
Supported employment entrepreneurial programs are available in the community.	2.48	.67
The local interagency agreement includes a formal plan for allocation of staff from each agency.	2.45	.64
Prior to being placed in paid employment, students receive training in more than one community based job site per school year.	2.45	.67
A building level planning team has been organized to plan transition procedures and timelines.	2.44	.64
The local interagency agreement identifies a target population to receive formal transition planning.	2.44	.68
The local interagency agreement mission statement defines student outcomes as paid employment in community sites for all students.	2.44	.63
The local interagency agreement includes a formal plan for cross agency inservice.	2.44	.58
The local interagency agreement includes procedures for evaluating ITPs.	2.41	.64
Students participate in community based instruction in groups of four or less.	2.41	.65
Adult services have a written policy of prioritizing their services to transition-aged persons with disabilities.	2.39	.62
School-sponsored vocational training and employment takes place during summer months.	2.38	.61
Special education student travel time to and from school approximates that of regular education students.	2.34	.65
Ecological assessments are the basis of individualized programming.	2.33	.64
Detailed written schedules are in place for each special education class, including a formal accounting of time spent in the classroom and community.	2.32	.68
Data corresponding to instructional programs are graphed and used to make instructional decisions.	2.27	.69
Parents and family members regularly visit classroom and community sites.	2.25	.64
Detailed written schedules are in place for building level personnel, including a formal accounting of time spent in the classroom and community.	2.24	.64
The state legislature mandates ITPs.	2.23	.74
Day treatment programs are available in the community.	2.23	.77
The local school system is vendored as a service provider of vocational rehabilitation services.	2.09	.74
Within the special education program each classroom has a separate vocational training budget including transportation, supplies, and other discretionary funds.	2.05	.78
Sheltered workshops are available in the community.	2.05	.78
Day activity centers are available in the community.	2.01	.79
Programs are staffed by nonpersonnel staff such as volunteers, peer tutors, and university students.	1.85	.70

university personnel ranked adult services processes significantly lower than all of the other groups, with the exception of parents.

Four factors were derived from the TEI responses. The item loadings for each factor are presented in Table 6. The first factor loaded on items with diverse content. Indicators within this factor seem to relate more to community based employment of students and community based instruction than any other identifiable attribute. Factor 2, labeled Interagency Planning and Transition Processes, was the clearest of all factors and contained almost exclusively items relating to interagency agreements and organizational structuring designed to enhance the transition of students from school to work. Factor 3, IEP/ITP and Program Development, loaded heavily on items relating to scheduling of instruction (e.g., written schedules at the student, classroom, and building level) and IEP/ITP/program development procedures. Factor 4, Program Availability, loaded heavily on items that related to the presence of day treatment and activity programs, sheltered employment, and supported employment options.

Table 4

Item and Subscale Mean Totals Analyzed by Demographics

Demographic Designation	df	X^2	p.
Age	2		
Total		2.78	.249
Special Education		4.15	.126
Parent/Consumer		.13	.936
Interagency Planning		1.69	.429
Adult Service		1.44	.486
Education	4		
Total		6.24	.182
Special Education		6.04	.196
Parent/Consumer		5.19	.268
Interagency Planning		4.07	.397
Adult Service		9.69	.047
Personnel Type	4		
Total		6.43	.170
Special Education		6.64	.156
Parent/Consumer		3.57	.468
Interagency Planning		2.88	.579
Adult Service		10.97	.027

* p. < .05

Table 5

Subscale Ranking Analyzed by Demographics

Demographic Designation	df	X^2	p.
Age	2		
Special Education		1.14	.566
Parent/Consumer		3.22	.200
Interagency Planning		0.23	.892
Adult Service		.75	.689
Education	4		
Special Education		4.57	.335
Parent/Consumer		12.68	.013*
Interagency Planning		6.23	.183
Adult Service		7.15	.128
Personnel Types	4		
Special Education		4.18	.382
Parent/Consumer		6.43	.170
Interagency Planning		6.16	.188
Adult Service		10.72	.030*

* p. < .05

The result of the factor analysis should be considered very preliminary and is included here as exploratory only. The factor intercorrelations are presented in Table 7 and indicate significant intercorrelations. Additionally an obtained value of .451 on Kaiser's measure (a test of sampling adequacy) is below the general acceptance level, indicating the tentative nature of the derived factors.

Discussion

The major purpose of this study was to assess the level of consensus surrounding elements purported to be important for the successful transition of youth with disabilities from school to work. The individuals that were asked to respond had a variety of perspectives on transition and possessed varying amounts of formal education and experiences relating to transition. A conscious attempt was made not to

Table 6

Factor Patterns of TEI Indicators

Dimension / Indicator	Factor Pattern Coefficients 1	2	3	4
Community Based Employment and Instruction				
Regular feedback is secured by employment programs from employers regarding worker performance.	.67		-.26	
Student preferences are reflected in IEP/ ITP goals and objectives.	.63			
Technology, including assistive devices, are supplied to the worker as required.	.58			
Employment outcomes are included in Individualized Education Plans (IEPs) and ITPs.	.54			
IEP goals include training of community survival skills (e.g., transportation training, restaurant use, and vending machine use).	.54			
Regular data are collected by employment programs as to worker quality, quantity, reliability, safety, and integration.	.53			
Students in special education participate in school-wide functions (e.g., dances, lunch, pep rallies, and other extra-curricular activities) with nondisabled peers.	.53			
Adult services advocate for paid and integrated employment to parents and caregivers of students with disabilities.	.52			
There are written instructional programs designed to increase generalization and maintenance of job skills, including the fading of staff assistance.	.52			
Employment programs communicate regularly with case managers and rehabilitation counselors regarding worker progress.	.50			
There is planned dissemination to parents of written materials describing available adult service options.	.50			
Rehabilitation technology, including the use of assistive devices, is used where appropriate in the classroom and community.	.49			

Dimension / Indicator	Factor Pattern Coefficients 1	2	3	4
Systematic instruction and training are utilized by employment programs to workers placed in position to develop quality, quantity, and interaction skills.	.48			
Job and task analyses are completed by employment programs as part of job placement and training.	.48			
Individual transition planning meetings are conducted for all students in special education programs.	.47			
Vocational training occurs in real community job sites.	.47			
The special education classes are physically integrated in regular age-appropriate schools.	.46			
Transitional employment placement and training programs are available in the community for young adults with mild and moderate disabilities.	.45			
Independent living centers (e.g., transitional living centers) are available in the community.	.43			
Employment programs speak regularly to school parent groups about the employment options available to school leavers.	.42			
Local case managers are available for transition age youth.	.42			
A transition liaison is designated by the school to initiate ITP planning meetings and to monitor the completion of goals and objectives.	.41			
Students regularly attend ITP meetings.	.41			
Vocational evaluations include informal techniques such as task analytic and situational assessments.	.40	.25		
Students are placed into paid employment prior to graduating from school.	.40		.30	
Students actively participate in development of IEP/ITP and attend IEP/ITP meetings.	.40			
Adult services allocate a case manager to the student prior to graduation.	.39			
Local personnel have participated in conferences on transition.	.38			
Adolescents receiving special education services and parents have access to support groups.	.38			
The school has established linkages with parent and consumer advocacy groups.	.38			
Employment programs communicate to schools job opportunities available to school leavers with disabilities.	.37			.34
Students participate in community based instruction in groups of four or less.	.37		.33	
Instructional programs are written for each goal in student's IEP.	.37			
Leisure programs are available in the community. Community leisure programs are integrated.	.36		.25	

Dimension / Indicator	Factor Pattern Coefficients 1	2	3	4
The community has access to public transportation or accessibility to regular buses.	.36			
Rehabilitation counselors regularly attend ITP meetings.	.35			
There is a public awareness program disseminating information on local transition planning efforts to businesses.	.35			.28
Employment and training programs develop employment plans from the basis of school vocational assessment and ITP/IEP.	.35			
Task analytic assessment and instruction are used in all instructional (domain) areas.	.35			
Vocational education teachers regularly attend ITP meetings.	.32		.25	.27
Adult service case managers regularly attend ITP meetings.	.32		.27	
Employment programs communicate regularly with schools as to the employment outcomes of graduates and assist schools with follow-up information.	.32		.26	
There are written instructional programs designed to build work rate and quality in vocational training programs and employment.	.30			
All students receive community based instruction at least one IEP goal other than a vocational goal.	.30		.25	
Employment specialists provide services to students in special education programs.	.29			
There is a systematic process of communication (other than IEP) between home and school.	.29			
Parents actively participate in development of IEP/ITP and attend IEP/ITP meetings.	.29			
Supported employment individual placement programs are available in the community.	.29			
Staff are routinely given inservice training on current vocational training and employment strategies.	.29			
A comprehensive local community needs assessment of school and adult service has been conducted.	.28	.26		
Vocational rehabilitation counselors base Individual Written Rehabilitation Plan (IWRP) on IEP/ITP information.	.28			
Follow-up studies of previous students in special education programs are routinely conducted at the local level.	.28			
Adult services have a written policy giving priority to paid integrated employment for school leavers.	.26			
Employment programs have policy of priority to job placement and training for school graduates with special needs.	.25			

Dimension / Indicator	Factor Pattern Coefficients 1	2	3	4
Interagency Planning and Transition Processes				
The local interagency agreement includes a formal plan for roles and responsibilities of participating agencies for the transition of services specified in the agreement.		.72		
The local interagency agreement includes a formal plan for implementing the agreement.		.65		
A local, formal interagency agreement that addresses transition planning has been developed and implemented between schools, vocational rehabilitation, and some adult service agency such as the Department of Mental Health and Mental Retardation.		.61		
The local interagency agreement includes a formal plan for allocation of staff from each agency.		.59		
The local interagency agreement defines procedures for referral of services for each agency or provider participating in the agreement.		.59		
The local interagency agreement includes procedures for evaluating ITPs.		.57		
The local interagency agreement includes a formal plan for cross agency inservice.		.56		
The local interagency agreement defines roles and responsibilities of school and adult agencies.		.56		
The local interagency agreement identifies a liaison from each agency.		.55		
The local interagency agreement specifies local comprehensive long range plans for developing new services or changing existing services.		.55		
The local interagency agreement includes timelines for implementation of transition services as specified in the agreement.		.54		
The local interagency agreements defines procedures for the transfer of responsibility for ITP goal implementation from the school system to adult service providers during the students' final year in school.	.26	.52		
The local interagency agreement defines eligibility procedures for each agency or provider participating in the agreement.		.51		
An interagency community planning team has been organized to plan transition procedures and timelines for the locality.		.50		
The local interagency agreements defines procedures for the physical transfer of records and information from the school to the adult service providers.		.50		
There are procedures for formally transmitting aggregate ITP implementation data to local community planning teams.		.46		
The local interagency agreement includes plans for funding and cost sharing.		.43		
One or more professionals are identified to conduct transition planning at the local level.		.42		
The local interagency agreement defines procedures for release of records between schools and adult agencies.		.40		

Dimension / Indicator	Factor Pattern Coefficients 1	2	3	4
Individualized Transition Plans (ITPs) are written for students in special education programs.		.37		.26
The local interagency agreement identifies a target population to receive formal transition planning.		.37	.29	
The local interagency agreement includes a mission statement defining expected student outcomes.		.38		
Within the special education program there is a separate vocational training budget including transportation, supplies, and other discretionary funds.		.31		.29
Supported employment entrepreneurial programs are available in the community.		.27		
The ITP planning team has access to a comprehensive document describing all adult services that are locally available.		.25		
IEP/ITP and Program Development				
Detailed written schedules are in place for each special education class, including a formal accounting of time spent in the classroom and community.			.63	
Detailed written schedules are in place for building level personnel, including a formal accounting of time spent in the classroom and community.			.56	
Family preferences are reflected in IEP/ITP goals and objectives.	.26	-.31	.53	
Student records are regularly reviewed with parents, guardians, or other significant family members.			.48	
Detailed written schedules are in place for each special education student, including a formal accounting of time spent in the classroom and community.			.45	
Programs are staffed by nonpersonnel staff such as volunteers, peer tutors, and university students.			.41	
Parent and family members regularly visit classroom and community sites.			.40	
Prior to graduation, students in special education programs are able to participate in nonschool-sponsored employment and job training.			.39	
The local school system is vendored as a service provider of vocational rehabilitation services.			.39	
The ITP team has written procedures for specifying the development and implementation of ITPs.		.26	.37	
The local school system is able to identify how Carl D. Perkins monies are used for vocational training for special education programs.			.37	
Within the special education program each classroom has a separate vocational training budget including transportation, supplies, and other discretionary funds			.38	.27
Employment programs communicate regularly with families regarding worker progress.			.36	

Dimension / Indicator	Factor Pattern Coefficients 1	2	3	4
Prior to being placed in paid employment, students receive training in more than one community based job site per school year.	.29		.33	
School-sponsored vocational training and employment takes place during summer months.			.33	
A building level planning team has been organized to plan transition procedures and timelines.			.33	
Adult services have a written policy of prioritizing their services to transition-aged persons with disabilities.			.32	
Parents regularly attend ITP meetings.	.30		.32	
Special education student travel time to and from school approximates that of regular education students.			.30	
Data corresponding to instructional programs are graphed and used to make instructional decisions.			.30	
Local community colleges provide classes and other post-secondary education programs for young adults with developmental disabilities.			.28	
The school has designated personnel to work with families on home and community training programs.			.28	
Longitudinal vocational goals and objectives are written in the IEP before students reach the secondary grades.			.28	
Self advocacy groups are active in the community.	.26		.25	
Parents sign release and consent forms which authorize sharing of information				
The local interagency agreement mission statement defines student outcomes as paid employment in community sites for all students.				
Vocational training outcomes are included				
Employment programs provide ongoing support to persons placed in supported employment by the school.				
Program Availability				
Day treatment programs are available in the community.				.79
Day activity centers are available in the community.				.78
Sheltered workshops are available in the community.				.76
The locality has specialized transportation for people with disabilities.				.51
The local school system uses Job Training Partnership Act (JTPA) funds to supplement vocational training and employment efforts for students in special education program.				.51
Students in special education programs receive formal vocational evaluations after age 14. community.				.50

Dimension / Indicator	Factor Pattern Coefficients 1	2	3	4
All special education students have access to school counseling services.				.44
Students in special education participate regular vocational education programs.		-.27		.42
Local school personnel are aware of the presence of a state interagency task force for transition planning.				.39
The state legislature mandates ITPs.			.38	.38
IEP goals include training on age-appropriate social skills in the school as well as community.	.34			.36
Up-to-date medical records are contained in each student's file.				.35
Supported employment enclaves are available in the community.	.31			.35
The special education program has discretionary money from federal, state, or local level to supplement the local program's efforts.				.34
There is a business advisory committee that assists special education staff in designing vocational training and employment programs.	.28			.31
Parents participate in implementation of one or more IEP goals at home, if indicated in IEP.				.30
Supported employment work crews are available in the community.				.30
Ecological assessments are the basis of individualized programming.	.35			-.35

Table 7

Factor Intercorrelations

	Factor 1	Factor 2	Factor 3	Factor 4
1. Community Based Employment	1.00			
2. Interagency Planning Transition Processes	.43**	1.00		
3. IEP/ITP and Program Development	.41**	.37**	1.00	
4. Program Availability	.29**	.32**	.26*	1.00

* p. < .01
** p. < .001

value one group of respondents over another based on publication or academic experience. This broad based approach was very beneficial in that it tapped. "expert

opinions" from direct service personnel to parents to academic theoreticians. The heterogeneous group of individuals who responded to the 130 item survey indicated that all of the items were somewhat to very important and there was, with several exceptions, a high degree of agreement among respondent groups.

The findings related to the first research question, "How do field personnel rate various elements presumed to be important to transition of youth from school to work?" confirmed the authors' working hypothesis that the respondents would rate the majority of the items highly. Since the items were gleaned from (a) published literature, and (b) from individuals presumably knowledgeable about transition issues, this finding is unremarkable. The above mid-point ratings are consistent with other studies that have surveyed respondents to assess ratings of various educational elements (Meyer, Elchinger & Park-Lee, 1987).

An examination of the top and bottom rated 10% of the items provides some insight into the relative importance of items taken individually (keeping in mind the high ranking on all items). "Supported employment individual placement programs are available in the community," was the single most highly rated indicator. The number one position of this indicator may be an artifact of the authors' affiliations with the Rehabilitation Research and Training Center on Supported Employment which were identified on the survey cover letter. Alternatively, this finding may be the result of OSERS and the vast majority of literature and policy documents equating transition and supported employment as process and outcome. The emphasis placed on parent and student input during program development and the relatively high ratings on written and other communication procedures is reflective of a recent and positive trend toward empowerment of the consumers of services. Persons with disabilities and their parents/significant others must be actively involved in the transition process.

Likewise, the perceived importance of community skills (including social skills) training recently advocated by many (Breen, Maring, Pitts-Conway, Gaylord-Ross, 1985; Gaylord-Ross, Maring, Breen, Pitts-Conway, 1984) is underscored by these data. A focus on vocational skills alone is not acceptable as it may lead to a worker capable

of performing specified job duties but incapable of successfully coping with the myriads f other critical variables associated with maintaining integrated employment (Wilcox, McDonnell, Bellamy, & Rose, 1988).

It is also instructive to examine the lowest rated indicators, again, however noting that with one exception that all means were above the midpoint. The survey respondents confirmed the authors, expectation that the presence of day treatment, day activity, and sheltered employment opportunities have less value than some of the other transition elements presented within the survey. However, it is interesting that some of the long advocated practices of instruction such as utilizing data to make instructional decisions and conducting ecological assessments for program individualization were in the bottom 10% of the ratings.

The homogeneity of responses between the demographic groups generally validates the notion that there is consensus of opinion surrounding these items. Notable was the low (significantly) value of indicators associated with the adult service options by persons with doctorates and university personnel. The data do not explain why this divergence occurs. One may speculate that persons associated with universities and/or holders of doctorates have less familiarity with the adult service system. Or, alternatively, it could be that these individuals have great familiarity with ineffective adult service systems. Without further queries of this group, it is not possible to reach a valid rationale to explain these differences.

In general, there were no reliable underlying dimensions identified from the survey responses. Given the restricted range of potential responses and relatively small number of responses in relation to the number of survey items, inter-indicator correlations would have had to be extremely high for clear dimensions to be identified. Ideally, the factor analysis would have yielded four factors similar to the a priori indicator groupings identified during the instrument development. The only one clear factor loaded most of the interagency planning items. While it is not possible to be certain, this may speak to the high visibility recently given to the need for interagency cooperation (Wehman, Moon, Everson, Wood, & Barcus, 1988; Will, 1984; Halpern, 1985).

Conclusion

The results of this social validation study provide a systematic assessment of field personnel's perception regarding the importance of certain programmatic elements associated with transition. This study takes expert opinion to a higher level, necessarily illuminating a path of further inquiry. The results indicate a collective consciousness about what is important in facilitating the successful transition of youth from school to work. To date, no empirical work has validated these indicators. Viewed in this light, practitioners should find these results useful in creating seemingly more effective transition processes. Researchers should find the results helpful in designing future inquires into transition.

As noted earlier, this investigation represents the first step of a two step process. What this study does not tell us is "Are the perceptions of field personnel accurate when vocational outcomes are used as criteria?" Or, alternatively, "What transition elements do, in fact, lead to greater vocational outcomes for persons with disabilities?" Resolution of these two questions are at once more difficult to obtain and more critical than ascertaining personnel's perceptions. The present study has laid a foundation upon which to begin a more stringent, empirical study designed to evaluate the real impact of these transition elements upon the lives of persons with disabilities. The second study will utilize school leaver follow-up techniques to determine individual student vocational outcomes via a vocational history since leaving school to include placement(s), wages earned, and levels of integration achieved. Archival information on recent school leavers will be collected to determine the presence or absence of these indicators. Post school histories or students will be obtained to assess vocational functioning. These data, when coupled with information relating to the presence or absence of transition elements should prove very helpful as programs in the 1990's are refined to decrease the joblessness of persons with disabilities.

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An Analysis of Job Duties Performed by Supported Employment Program Managers

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Abstract

The purpose of this study was to analyze the daily functions of supported employment program managers in the state of Virginia. A survey instrument was used that required program managers to document the activities that they engaged in for five consecutive work days. Of the 46 instruments that were mailed, a total of 30 surveys were returned, achieving an overall response rate of 65%. Categories of activities and tabulation of time spent were aggregated across all respondents to yield a percent of time spent performing each of the five functions of management including planning, organizing, directing, coordinating, and controlling. The data were analyzed to assess differences in program managers' daily activities based on program location, number of persons, length of program managers' employment, number of employment specialists supervised, and program affiliation. Results indicated that program managers engage in all five functions of management, with managers closely dividing their time between administrative and direct service tasks. Additionally, length of employment for program managers showed a statistically significant difference for the planning function of management. Managers employed 18 or fewer months spent a greater amount of time on performing, planning, and controlling duties.

Within the past five years the Office of Special Education and Rehabilitation Services (OSERS) has made supported employment a major federal priority (Will, 1984). Along with this new federal initiative, there is a growing body of literature that documents the lack of trained personnel to implement supported employment services (Harold Russell Associates, 1985; Renzaglia, 1986; Syzmanski, Buckley, Parent, Parker, & Westbrook, 1988; Wehman, Moon, & McCarthy, 1986; Weisenstein, 1986; Will, 1984). Without immediate attention to this present shortage of trained personnel, 50 to 75% of the adults with disabilities in this country may continue to remain unemployed and underemployed (U.S. Commission on Civil Rights, 1983). Kregel and Sale (1988) point to the current lack of qualified professionals to staff newly emerging supported employment services, with their unique personnel roles, as the most urgent problem facing the successful implementation of supported employment for persons with severe disabilities.

By 1986, a total of 27 states had received funds to implement supported employment programs from the Rehabilitation Services Administration, OSERS, at the U.S. Department of Education. This new employment service currently being offered in these 27 federally funded states and several additional states is markedly different than the vocational options that have historically been made available to persons with disabilities. The Rehabilitation Act Amendments of 1986 (P.L.99-506) clearly identify the unique features of supported employment services including: service to persons with severe disabilities; paid work in integrated work settings; and ongoing support throughout employment to help ensure job retention (Federal Register. August 14, 1987).

Few university programs have preservice programs designed to equip professionals with the skills to work with the unique needs of persons with severe disabilities (Wilcox & Bellamy, 1982), let alone the added competencies necessary to prepare personnel to enter supported employment programs (Kregel & Sale, 1988). In 1985 OSERS funded a study to identify the essential organizational elements and competencies necessary to operate a successful supported employment program (Harold Russell Associates, 1985). Results of this study identified two major professional staff roles in supported employment programs including direct service and program

management. Currently, there exist a number of sources that describe the competencies necessary for a professional providing direct service to persons in supported employment (Barcus Brooke, Inge, Moon, & Goodall, 1987; Kregel & Sale, 1988; McDaniel & Flippo, & Lowery, 1986; Pancsofar, 1986; Wehman & Melia, 1985). However, this seemingly comprehensive list of competencies appears to have two major weaknesses. First, program managers' competencies have been excluded from this body of literature, and second, expert opinion has been the major method for delineating competencies (Sale, Barcus, Wood & Moon, 1989).

The major purpose of this study was to analyze the daily functions performed by Virginia supported employment program managers and to provide a major first step in empirically documenting competencies for both preservice and inservice training programs for supported employment program managers. Additional analyses were conducted to determine how program location, number of persons served, length of program managers' employment, number of employment specialists supervised, or program affiliation (supported employment program within a rehabilitation facility vs. outside a rehabilitation facility) were related to the daily functions of a supported employment program manager. The research questions related to these areas were:

1. Is there any difference in the daily functions of a supported employment program manager when analyzed in terms of program location?
2. Does the number of persons currently being served in supported employment relate to the duties of a supported employment program manager?
3. Is length of employment related to the daily functions of a supported employment program manager?
4. Is the number of employment specialists that a supported employment program manager supervises related to his/her job duties?
5. Do the functions of a supported employment program manager differ when implementing the program within an established rehabilitation facility vs. outside a rehabilitation facility?

Method

Sample

A total of 46 supported employment programs were identified through the Virginia state office of supported employment (Virginia Commonwealth University-

Rehabilitation Research and Training Center Quarterly Report, June 30, 1988). The first author contacted each program by telephone to identify the program manager of the supported employment project and to secure the manager's participation in the study. All managers agreed to participate and were mailed the instrument described below. Out of the 46 surveys that were mailed, a total of 30 surveys were returned, achieving an overall response rate of 65%.

Instrument

A survey that consisted of five daily log instruments and a one page demographic questionnaire was developed and mailed to all 46 supported employment program managers in the state of Virginia. Figure 1 displays a sample daily log instrument and represents the
basis for this research study.

The daily log was designed to answer the major research question and is formatted to include items prescribed as necessary by Carlisle (1986) including date, category of activity, description or examples of the activity, and length of time devoted to a particular activity. Drawing upon the business literature, the daily log instrument was organized around the five classically accepted functions of management: planning, organizing, directing, coordinating, and controlling (Haimann & Helgert, 1972; Muczyk, Schwartz, & Smith, 1984; Terry & Rue, 1982). Using an expert panel review process, four to seven specific supported employment tasks were listed under each of the corresponding functions of management. Additional space was provided to allow the respondent to record specific tasks that were not listed on the form. Items in the right column of this daily log were specific examples of activities that directly related to the corresponding number in the left column, functions of management.

Procedures

Pilot testing. Following the expert panel review, necessary changes were made to the daily log instrument and a pilot test was conducted using five supported employment program managers. The pilot test yielded no additional changes.

Figure 1

Daily Log

Date: _____

FUNCTIONS OF MANAGEMENT	EXAMPLES
Record time spent to the left of EACH activity that you performed. For example if you spent 1' 45" creating personnel leave policies you would record 1'45" on the first line of this form next to Personnel policies.	This column provides some specific examples for each corresponding function of management.
A. PLANNING	
1. _____ Personnel-related policies	1. Leave time; benefits; reimbursement
2. _____ Client-related policies	2. Confidentiality; referral; waiting list
3. _____ Allocate resources	3. Develop budgets; establish vendor rate
4. _____ Predict future procedures	4. Review federal regulations; impending legislation
5. _____ Job Development	5. Marketing; community screening; employer contact
6. _____ Consumer Assessment	6. Referral paperwork; interviews and observations; situational assessments
7. _____ Other _____	
8. _____ Other _____	
B. ORGANIZING	
1. _____ Group similar activities	1. Divide caseload by geographical boundaries
2. _____ Assign staff to activities	2. Match staff expertise with work to be completed
3. _____ Analyze efficiency	3. Review benefits of combining or splitting job developer & job coach roles; analyze schedules; reduce burnout
4. _____ Other _____	
5. _____ Other _____	
C. DIRECTING	
1. _____ Hire new staff	1. Screen, select & interview new employees
2. _____ Ensure inservice training	2. Contract with inservice trainer; provide training
3. _____ Daily supervision	3. Provide technical assistance at job site
4. _____ Daily communication	4. Listen to staff concerns; remind staff of duties
5. _____ Case management	5. Communicate with families, Social Security Office, etc.; attend client service plan meetings
6. _____ Other _____	
7. _____ Other _____	
D. COORDINATING	
1. _____ Develop linkages	1. Transition planning; meet with other providers
2. _____ Unify staff	2. Inform staff as group objectives are achieved
3. _____ Promote harmony	3. Provide for staff development activities
4. _____ Client training	4. Perform direct service responsibilities of job site training
5. _____ Other _____	
6. _____ Other _____	
E. CONTROLLING	
1. _____ Set performance standards	1. Determine # of placements to be made in 1 year
2. _____ Measure program results	2. Develop benefit/cost ratio of services delivered
3. _____ Evaluate services	3. Analyze intervention data, program cost, & total clients placed into employment
4. _____ Other _____	
5. _____ Other _____	

Does this represent a typical day for you? (circle one) YES NO

If NO, please explain: _____

Note: If you need additional space, please use the back of this form.

Reliability. All results from the survey were maintained on the Virginia Commonwealth University's mainframe computer and were checked for completeness. Reliability of data results was assessed by having five program managers keep two sets of daily logs for five consecutive days. These supported employment program managers carried one set of daily logs with them and recorded each supported employment activity as it was performed. A second set of daily logs were kept by the

same group of program managers; however, entries were made in these logs only at the end of the work day. A reliability coefficient score of 82% was achieved by comparing the two sets of logs and then assessing the two logs for total number of agreements. Total agreements from each form were summed and divided by 125 (total possible agreements) to obtain the percent of agreement. Results varied greatly, with a wide spread in scores. Three forms achieved 100% reliability, one form achieved 60% reliability, and one form achieved 52% reliability.

Design and Statistical Analysis

For the primary research question, "What are the daily . functions performed by a Virginia supported employment program manager at a local provider level?", categories of activities and tabulation of time spent was aggregated across all respondents. This yielded a computation of the percent of time spent performing each of the management functions: planning, organizing, directing, coordinating, and controlling.

A Mann-Whitney U-test was performed for each of the secondary research questions resulting in an R score which was obtained by summing the ranks for each of the dependent variables. A nonparametric statistic test was chosen because nominal scale data were utilized in this study (Huck, Cormier, & Bounds, 1974). Specifically, a Mann-Whitney U-test was selected because each of the independent variables has two levels and a rank order of responses would be obtained (Siegel, 1956).

Data were analyzed using the SAS statistical software (SAS Institute, 1986) and stored in a university mainframe computer.

Results

Percent of Time Spent on Each Function of Management

Results of this study indicated that supported employment program managers in the state of Virginia spend time engaged in all five functions of management. Additionally, these data reflect that program managers spend 44.6% of their time engaged in administrative type tasks and 41.5% of their time engaged in direct service type tasks. The above two research findings are presented in Table 1.

Table 1

Total Percent of Reported Supported Employment Time Divided by Administrative and Direct Service Duties

Administrative Type Task	% of Total Supported Employment Time	Direct Service Type Task	% of Total Supported Employment Time
		PLANNING	
Personnel-related policies	3.0%	Job development	4.4%
Client-related policies	1.1%	Consumer assessment	3.4%
Allocate resources	1.4%		
Predict future	1.3%		
		ORGANIZING	
Assign staff to activities	3.1%	Client-related meetings	4.6%
Analyze efficiency	2.2%		
		DIRECTING	
Hire new staff	1.4%	Client-related communications	7.3%
Ensure inservice training	4.8%		
Supervise daily	8.4%		
Staff-related communication	7.4%		
		COORDINATING	
Unity staff	1.4%	Develop linkages	5.9%
		Job placement	1.7%
		Client training	16.5%
		CONTROLLING	
Set performance standards	1.5%		
Measure program results	2.2%		
Evaluate services	5.4%		
Total % of time engaged in administrative duties*	45.0%		44.0%

**Time reported in the categories labeled "other" were not included in this analysis (10%).*

Planning. The planning function of management accounted for 18% of the managers' total supported employment working hours. Job development and consumer assessment job tasks were reported to account for an overall total of 8% of the program managers' total supported employment time and represents the top two job tasks under the planning function of management. More typical administrative types of planning

duties such as developing policies, allocating resources, and predicting future procedures accounted for 6% of the program managers' supported employment time.

Organizing. Organizing functions of management were reported to account for 12% of the program managers' time spent in supported employment tasks. Approximately 5% of the managers' total supported employment time was spent engaging in such organizational tasks as assigning staff to activities and analyzing the efficiency of programs, with an additional 5% reported as being time engaged in client-related meetings. The remaining 2% of time reported in this category was under the "other" category.

Directing. A total of 30% of the supported employment program managers' supported employment time was reported to be engaged in directing functions of management. This category of management accounts for the single largest quantity of a supervisor's time. While respondents reported spending time engaged in all of the job tasks classified as directing, a total of 16% of the program managers' time was spent in daily supervisory tasks and staff-related communications. Hiring new staff and ensuring staff receive inservice training accounted for an additional 6% of manager time. It is also significant to report that a total of 7% of the managers' supported employment time was engaged in client-related communications such as communication with families, Social Security officers, rehabilitation services professionals, and employers.

Coordinating. Under the coordinating function of management, program managers reported spending 28% of their supported employment time engaged in duties associated with this function of management. Developing linkages and coordinating services accounted for 6.1% of the managers' total supported employment time. Direct client training accounted for 17% of a Virginia program manager's total supported employment time. This was the single largest portion of time when compared to all other job tasks.

Controlling. Controlling functions of management account for 10% of the program managers' total supported employment working time. Job duties that relate to this function of management were not reported to occur on a frequent basis. However, when program managers did record time spent under this function, it was generally to

measure program results or evaluate services. These two job duties account for 8% of the managers' total time spent involved in supported employment related activities.

Length of Program Managers' Employment

In addition to analyzing the daily functions of Virginia supported employment program managers, the data were further analyzed and compared for differences among program location, number of persons served, length of program managers' employment, number of employment specialists supervised, and program affiliation. The results of these analyses showed no significant difference, with the exception of length of employment for program managers. There was a statistical difference between program managers who have been employed for a long period of time (greater than 18 months) and program managers who have been employed for a short period of time (less than or equal to 18 months). A range of one month to 103 months were reported by the program managers. A median point of 18 was computed (48.3 percent of managers report being employed for one and one half years or less).

This analysis showed no difference among organizing, directing, and coordinating functions of management. However, the planning functions of management showed a statistically significant difference with an R score of .001 and the controlling function of management approached significance with an R score of .057. These data indicate that managers who have been employed for a short period of time (less than or equal to 18 months) spend greater amounts of time on performing, planning, and controlling duties than do program managers who have been employed for a longer period of time.

Table 2

Distribution of Percent of Time Categorized by Function and Length of Employment and Associated Mann-Whitney U Test

	R Score		Z Score	p. < z =
N = Group	Long n = 15	Short n = 14		
Planning	153.50	281.50	3.09	.001**
Organizing	198.00	236.50	1.13	.255
Directing	225.00	210.00	.02	.982
Coordinating	245.00	190.00	.85	.394
Controlling	268.50	166.50	1.89	.057

** p < .01

Discussion

The findings from this study should be viewed as a beginning in empirically determining the duties and responsibilities that program managers carry out in the day to day operation of supported employment programs. These results clearly demonstrate that Virginia supported employment program managers are not "glorified" direct service personnel. Rather, these individuals are performing supervisory tasks as demonstrated by their engaging in all five of the functions of management.

Another major finding from this study is that Virginia supported employment programs have followed the advice of experts (Bellamy et al., 1988) who suggest that supported employment programs be designed to allow for administrative personnel to participate in the direct service tasks of the organization. With Virginia program managers dividing their time between administrative tasks and direct service tasks, many interesting implications can be drawn for both inservice and preservice personnel training programs.

While preservice programs are in need of greater amounts of empirical research, the results of this study clearly indicate that college and university programs need to design a curriculum with an equal emphasis on management and direct service skills. Preservice programs following this prescription for their supported employment programs will then be in a better position to graduate students equipped to handle the unique role as program managers of supported employment services. These graduates will be trained to apply successful supported employment practices and to manage the overall operation of these organizations.

Inservice training programs will be the vehicle through which most supported employment program managers will acquire specific supported employment knowledge and skills. Professionals providing this type of inservice training must be prepared to assess the individual needs of participants prior to developing training agendas. Designing agendas based upon needs assessment data will help ensure that the training goals and objectives are specific to the task that supported employment managers actually perform. The results of this study indicate that inservice trainers must be prepared to assist program managers in developing technical as well as

administrative skills. Technical and/or direct service skills would include such agenda topics as systematic instruction program design, fading instruction from a job site, transition planning, job development, and consumer assessment. Examples of administrative agenda items would focus on such broad areas as supervision methods, policy development, procedures for hiring staff, and measuring and evaluating services. Once the needs assessment is conducted, then specific inservice training programs can be designed to assist managers in developing the necessary skills to operate quality supported employment programs.

Finally, because no differences were found when programs in urban and rural areas were compared, neither inservice nor preservice training programs would need separate agendas or curriculums for supported employment program managers in different types of service areas. This alleviates the need to conduct parallel training and thus attenuates the cost of training.

While more research is needed in this area, this study has provided a framework from which future research projects can be designed. Some future areas of research might include developing a data base that would include a national sample of supported employment program managers this would provide a more accurate sampling from which data could be generalized to determine the variety of duties that supported employment program managers perform at the local provider level. These data could then be analyzed to compare efficiency and effectiveness of managers of supported employment programs.

Summary

The present study provides preliminary directions for the design of inservice and preservice training for the growing number of supported employment personnel. Neither traditional programs solely providing direct service skills (e.g., special education, rehabilitation counseling) nor those focusing exclusively on managing and supervising (e.g., public administration, business) will adequately prepare supported employment managers for their required duties. Instead, the results presented within this study indicate the need for "hybrid" programs that provide didactic and field experiences in

both management and direct service skill areas. Designing a curriculum that reflects both will continue to

be a challenge to organizations providing supported employment training. Interdepartmental and interagency cooperation have been the foundation of supported employment to date and will be prerequisite if supported employment training is to meet the needs of program managers.

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Supported Employment:

Job Retention Strategies and Techniques

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Abstract

This chapter examines issues, strategies, and techniques for providing follow along services within a program of supported employment to individuals with traumatic brain injury. Two case studies are presented which illustrate these strategies and techniques and the importance of proactive, prescriptive, and individualized follow along.

Recent research indicates that cognitive, linguistic, behavioral, and motoric complications following severe head injury adversely affect the employability of the injured person (Brooks, McKinlay, Symington, Beattie, & Campsie, 1987; Oddy, Coughlan, Tyerman, & Jenkins, 1985; Peck, Fulton, Cohen, Warren, & Antonello, 1984; Weddell, Oddy, & Jenkins, 1980). Despite the natural recovery process and therapeutic interventions, impairments in these domains are likely to persist for many years post-injury, perhaps for the individual's lifetime (Klonoff, Costa, & Snow, 1986; Oddy, Coughlan, Tyerman, & Jenkins, 1985; Thomsen, 1984). These complications undoubtedly contribute to low employment and job retention rates for persons with traumatic brain injury, or TBI (Kreutzer & Morton, 1988).

Due to their time-limited nature, traditional vocational rehabilitation services are often ineffectual with individuals who have severe lifelong disabling conditions such as TBI, particularly in helping them maintain their employment (Wehman, Kreutzer, Wood, Morton, & Sherron, 1988). The provision of ongoing support services that promote job retention is therefore an integral component of supported competitive employment for persons with TBI.

Because of the numerous problems experienced by these individuals and the continual threat of job termination, the identification and provision of appropriate support services should be a proactive process rather than reactive (Kreutzer & Morton, 1988). Potential problem areas, antecedents, and consequences should be identified during the job stabilization phases, and a prescriptive, written follow-along plan developed by the employment specialist, the employer, coworkers, family members, the client, and any other concerned parties. For the benefit of both the client and the employer, response to crisis or requests for assistance should be immediate and according to the agreed plan.

The Rehabilitation Research and Training Center on Supported Employment at Virginia Commonwealth University (RRTC) has been providing supported employment services to persons with TBI since 1985. At this writing, 12 persons are receiving follow-along support services from four employment specialists, or job coaches. The success of the TBI supported employment initiative is evidenced b the fact that only

three placements, or 10.9% of all placements, have ended by termination. This chapter will address specific strategies and techniques that we have found to be effective in assisting individuals with TBI to maintain employment, and present two case studies illustrating the relationship between proactive follow-along services and job retention. We would like to begin by defining follow-along support services within a legal and programmatic context.

Issues Related to the Provision of Follow-along Support Services

Supported vs Time-Limited Employment Services

The distinguishing characteristic between supported employment and traditionally time-limited vocational services is the provision of post-employment support services. While time-limited vocational services may incorporate supportive and follow-along methods, a program of supported employment will by necessity include interventions at the job site due to the nature of its service consumers. The final regulations for the Rehabilitation Act Amendments of 1986 (Federal Register, August 14, 1987) state:

> The need for job skills reinforcement under this program distinguishes supported employment from other rehabilitation programs where job accommodations or independent living services such as readers, transportation or housing may be the only needed post-employment services...individuals with severe handicaps, with the exception of the chronically mental ill, would be inappropriate candidates for supported employment if they do not need job skill training at least twice monthly (p. 30549).

The Amendments differentiate between supported employment service consumers who are severely disabled and those disabled by mental illness, who may need continuing off-site interventions after employment without additional job skill training. For those individuals and those alone, supported employment monies may fund transitional employment services without a clear need for follow along services provided at the job site (p. 30551).

Moreover, individuals targeted for supported employment programs would be expected to require ongoing support services for the duration of their employment (p.

30546). Traditionally time limited postemployment services by statutory definition do not extend beyond 18 months from the date of employment (p. 30551). While many individuals with even severe disabilities are able to obtain and maintain employment through time limited services alone, many cannot without regular provision of intervention and support.

The types of activities authorized by the Rehabilitation Act Amendments of 1986 as "extended services" are of two types: On site intervention and off site intervention, with authorization of off site intervention conditional on provision of on site interventions. Further in this chapter, we will describe these interventions more fully.

Funding of Follow Along Services

Coordination of Funding Sources

Time limited vocational training services for supported employment consumers are generally funded by state vocational rehabilitation agencies, following the identification of an appropriate state or private nonprofit funding source for extended services (Federal Register, August 14, 1989, p. 30552). The coordination of funding from time limited services to ongoing support has often been problematic for supported employment providers (Arkansas Research & Training Center, 1985), resulting in either the absence of follow-along or the abandonment of the supported employment concept.

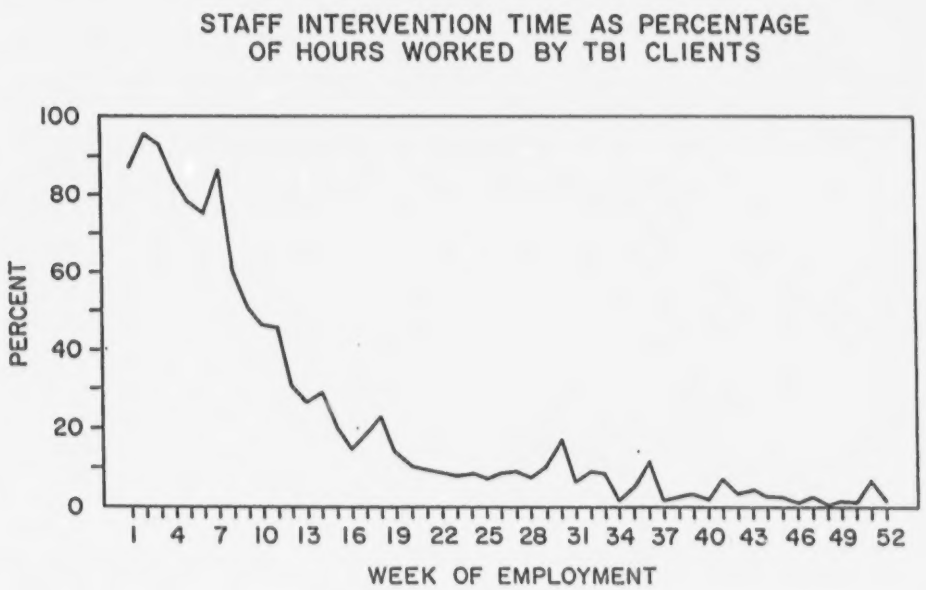
Extended services funding may be even more problematic for the TBI population, who may not fall under the traditional state mental health/mental retardation funding "umbrella." In a recent survey of the 27 states awarded Title III supported employment systems change grants in 1986 and 1987, Kregel, Shafer, Wehman, and West (1989) found that only five states had identified funding sources for extended services for individuals with TBI, and then only for those who also met the additional criteria of the state MH/MR/DD agency. Supported employment provider agencies may need to approach non-traditional funding sources, such as head injury foundations, workmen's compensation or liability insurance carriers to obtain assurance of follow-along funding. Another alternative might be the setting aside of consumer resources for later follow-along activities, and utilizing the Plan for Achieving Self-support (PASS) income exclusion offered to SSI recipients (Nielson, 1986). Thus, consumers pay for their own

follow-along services, but retain SSI cash benefits to offset their costs. Using the PASS exclusion has one serious drawback in that it can only be extended for a maximum of 48 months. However, this strategy may give the program time to locate permanent funding for extended services.

Costs Related to Follow-along Services

Funding formulas and costs for transitional and follow-along services vary tremendously from state to state (Wehman, Shafer, Kregel, & Twardzik, 1989). In Virginia, job stabilization, and thus the termination of time-limited funding, occurs when staff intervention time falls below 20% of the consumer's work hours for 30 days of employment (Rehabilitation Research and Training Center, 1988). Figure 1 shows the average amount of staff intervention per week as a percentage of work hours aggregated for all TBI consumers served by the RRTC, beginning with the date of placement. Several assumptions may be made from this data:

Figure 1



1. TBI consumers averaged about 22 weeks of transitional services before the stabilization period ended. It is interesting to note that this period is approximately three weeks longer than for all reported placed consumers in Virginia, a group comprised predominantly of individuals with mental retardation and chronic mental illness (Rehabilitation Research and Training Center, October, 1988).

2. TBI consumers averaged just under two hours of staff intervention time per week of extended services. At the RRTC's vendor rate of $26.92 per contact hour, the weekly cost of extended services has averaged approximately $54 per consumer.

3. The mean length of employment at this writing is 36 weeks (and steadily increasing). The total cost for providing follow along support services for 14 weeks (36 minus 22) is approximately $756 per placement.

It should be noted that these are gross estimates of costs based on a limited number of placements by a university-supported demonstration project. However, the RRTC's vendor rate approximates those of other facility and nonfacility vendors. While the follow along intervention time and costs for TBI consumers compare favorably with those for other disability groups (Hill, Hill, Wehman, Revell, Dickerson, & Noble, 1985), we have yet to conduct true benefit/cost studies and alternative program cost comparisons because of the limited number of placements.

Family Involvement and Job Retention

Therapeutic Intervention

Families of persons with TBI often bear the brunt of the injury's aftermath. Changes in the injured person's personality and behavior can create family stresses, tensions, and disruptions that may or may not be ameliorated by the passage of time (Brooks, Campsie, Symington, & Beattie, 1986; Livington, Brooks, & Bond, 1985; Newman, 1984). There is also some evidence that family stress and dysfunction is not significantly reduced by the individual's return to work and other everyday activities (Oddy, Humphrey, & Uttley, 1978). These findings suggest that family-based therapeutic intervention is in most cases vital to employment success.

Support programs for families of workers with TBI will need to focus attention on three areas that directly influence job placement and retention: (a) Helping the parents or spouse develop realistic vocational and independent living goals for the head-injured person (Karpman, Wolfe, & Vargo, 1986; Schultz, 1986), (b) helping them

develop mechanisms and skills for relieving family stress and dysfunction (Zarsky, Hall, & DePompei, 1989), and (c) helping family members understand and prepare for the financial implications of full-time or part-time employment, such as the loss or reduction of SSI, SSDI, Medicaid, or other entitlements (Noble & Collignon, 1987). The role of the employment specialist would be to help families obtain family-based therapy, not to provide it.

Active Participation

Family involvement in job development, placement and retention has long been recognized among service providers for consumers with developmental disabilities as essential for employment success. Without full support from the family, long-term job retention is unlikely (Keirnan & Kregel, 1980; Kochany & Keller, 1981; Wehman, 1981). This support is usually manifested in agreements to provide transportation, to insure that the consumer is adequately prepared to go to work, to monitor medication, to report health or psychological status, and to provide emotional support and encouragement. Depending on their age and levels of dependency, individuals with TBI may also need these home supports as part of a job retention plan. It is also helpful for family members to understand the difference between active involvement and over-protection. Untimely events, such as a parent calling or visiting an employer with complaints, have soured many employers on hiring workers with disabilities (Wehman, 1981).

The Importance of Choice in Job Retention

Although individuals who have sustained severe head injuries are often aware of the dissonance between their pre-injury and post-injury status, including occupational levels, their expectations for recovery and return to work are often unrealistic (Nockleby & Deaton, 1987; Tyerman & Humphrey, 1984). Acceptance of the "new self" and its accompanying abilities and limitations is a critical antecedent of vocational adjustment. Employment specialists and counselors must balance the self-perceptions and interests of the head-injured client against the real demands of the work world, and present him or her with reasonable, obtainable career choices during the placement phase as the first step towards long-term job retention (Kreutzer & Morton, 1988).

Likewise, the decision to remain in a position is a matter of choice for the employee with disabilities. They, as do we all, need the opportunity to advance, to change jobs, or even to be unemployed, without being perceived as failures (Anthony & Blanch, 1987).

Planning Services for Enhancing Job Retention Potential

Fading From the Job Site

Rate of Fading

The fading of the employment specialist from the job site is perhaps the most difficult adjustment period for both the supported employee and the employer. Fading too rapidly may result in a loss of skill and behavioral gains that had been previously made; fading too slowly may increase employee and employer dependence on the employment specialist. Determining the rate of fading must be made on an individual basis, using all the available client data (i.e., supervisor's evaluations, production rates, etc.) as guides (Wehman, 1981).

Fortunately, there are strategies that the employment specialist can employ to mediate the effects of fading. We would like to review two approaches here that are particularly relevant to the discussion of follow-along services, self-management of behavior and the use of coworkers as co-therapists.

Developing Self-Management Strategies

The most powerful antecedents and consequences to behavior are those that occur in natural environments, be they vocational, social, or academic (Stokes & Baer, 1977). When the learner seems unable or unwilling to respond to natural antecedents and consequences, alternative strategies are in order. Self-administered cues and consequences have been successfully used in the instruction of children and adults with developmental disabilities in social, academic, daily living, and vocational applications (Crouch, Rusch, & Karlan, 1984; Karlan & Rusch, 1982; Wacker & Berg, 1983). Wacker and Berg (1986) describe the use of self-management within an employment situation. Although they specifically address strategies for workers with mental retardation, similar strategies may be useful for workers with TBI who have deficits of

memory, concentration, or disinhibition. By teaching self-control of behavior, the employment specialist is closer to insuring that the worker can function in the workplace in the absence of external guidance and instruction.

Self-administered cues. Wacker and Berg (1986) describe three methods of self-cuing. The most frequently used form is self-instruction, in which the worker is first taught to perform the task, and then to produce self-generated verbal prompts to initiate and complete the task. For example, after instructing a motel housekeeper in the various tasks associated with room cleaning, the employment specialist might train the employee to initiate each task with an instruction (i.e., "First, clean the bathroom," "Next, dust the furniture") immediately prior to the performance of each step. Self-instruction might also be utilized for initiating social contacts on the job, as with lunch or break behavior, greeting the supervisor or coworkers, or appropriate responses to stressful situations.

A strategy similar to self-instruction is verbal labeling, in which tools, work pieces or aspects of a job are made more concrete and salient by the worker verbalizing its name or label. For example, in a data entry position which requires separate entry formats for various forms or lists, the employment specialist might instruct the worker to verbally name each form prior to entry. This verbal cue then triggers the appropriate response, in this case the selection of the appropriate format.

The third method of self-cuing is the use of a permanent prompt, such as a written list of duties or task sequences or picture prompts bound into a book. Another prompting system, one which might be less stigmatizing to the worker with TBI, is the use of taped instructions and a portable cassette (Berg & Wacker, 1988). The worker is instructed to start and stop the tape at appropriate times in order to receive task or sequencing instructions.

Self-administered consequences. Training workers with disabilities to self-administer consequences of behavior has two major advantages over externally administered consequences: first the worker has the opportunity to receive greater amounts of reinforcement when natural reinforcement is scarce. Second, an employee

who self-reinforces or punishes is less likely to be affected by disruptions at the job site, such as changes in supervision (Wacker & Berg, 1986).

Reinforcements and punishments to be self-administered at the job site are an individual determination, based on the likes and dislikes of the worker and the level of tolerance at the work site. For example, a worker may be trained to allow himself a special treat at break periods for completing assignments or responding appropriately to his co-workers. This type of self-reinforcement would be easily tolerated at most any job, whereas allowing extra break periods might not be.

Planning Co-Worker Involvement

One of the primary goals of integrated employment is natural development of friendships and social contacts between the worker with disabilities and his or her co-workers. Co-workers have also been recognized as active and passive resources in providing follow along services. Passive functions include the use of co-workers as normative references for assessing consumer worker performance (White, 1986). The use of co-workers as active change agents has been suggested as a means of controlling program costs (Hill & Wehman, 1983) as well as maintaining job performance through daily contact (Wehman, 1981; Rusch, Martin, & White, 1985).

Shafer (1986) describes three active functions that co-workers can perform as part of a job retention plan. The first is that of advocates for the supported employee, ensuring that he or she is treated fairly and with dignity while at work. Second, co-workers can be active observers and reporters of job performance and potential problems that may be developing. Finally, coworkers may function as trainers, providing either direct instruction in new work tasks or periodic reinforcement for correct performance or appropriate behaviors. It is important in planning co-worker involvement that individuals are selected who are willing and able to perform the duties as instructed by the employment specialist, and that their involvement with the supported employee will only minimally intrude upon their own job duties.

Planning and Implementing Extended Services

Effective follow-along utilizes both formal and informal strategies of problem analysis and data collection. Informal methods include discussions with the supervisor

and/or coworkers at the job site, discussions with family members, accessing community support services, and other direct and indirect client-related activities. Formal methods are used to collect outcome data that are used for ongoing assessment of work performance, or data that are used for ongoing assessment of work performance, or data which is aggregated for the purpose of evaluating program effectiveness.

Informal Strategies

On-site interventions. Contacts with employers following job stabilization will typically involve site visits or telephone contacts with the employer concerning the employee's job performance. In most cases, the site visit will elicit the most useful information about the employee's adjustment to the workplace and to the supervisor and coworkers (Hill, Cleveland, Pendleton, & Wehman, 1982). Retraining activities may be necessary in the event that the employee's work quality or speed diminish over time or if job duties change (Moon, Goodall, Barcus, & Brooke, 1986).

For employees with TBI, another vital concern may be monitoring the emotional stability of the employee. Disinhibition, temper outbursts, and other inappropriate behaviors are often latent responses to employment stress (Kreutzer & Morton, 1988) and may not be predictable, especially if the TBI consumer has no other post-injury employment. Employers will need to be informed of any known symptoms of an impending flair-up and appropriate means of supervisory response, including time-out procedures, suspensions, or calling the employment specialist for crisis intervention. In some instances, part of the initial negotiations between the employer and the employment specialist may be obtaining permission for "psychosocial first aid" (Isbister & Donaldson, 1987) to be administered at the job site by the employment specialist or a qualified therapist if the employee's behaviors escalate beyond the supervisor's control.

It should be evident from the preceding discussion that many individuals with TBI will require a sympathetic and understanding employer in order for the placement to be successful. It is vitally important that they know what to expect from the employee, both in productivity and behavior, and the degree to which professionals may be used as resources in correcting problems in either area.

Off-site interventions. As mentioned earlier in this chapter, family members are often vital to employment success for individuals with TBI, by providing either assistance, emotional support, or both. Contacts with family members by the employment specialist should focus on aspects of home life which are likely to impinge upon the work environment. These would include the ongoing assessments of the consumer's emotional stability, use or abuse of prescription and non-prescription drugs including alcohol, and problems related to finances, and family functioning. The employment specialist should perform educational and referral functions, informing the consumer and family membors of treat programs (i.e., Alcoholics Anonymous) and other services and entitlement (i.e., SSI, SSDI) that are available in their community, and helping them access these services (Kreutzer & Morton, 1988).

A comprehensive retention plan will also include advocacy efforts on behalf of the consumer with services personnel or other individuals. This might include progress or status reports to the consumer's vocational rehabilitation counselor, neuropsychologist, or physician. For individuals who reside in supervised apartments or group homes, changes in work schedule or problems with dress, medication, or finances will need to be communicated to the appropriate staff. Individuals who live independently or semi-independently may require an intermediary for dealing with a landlord or creditor. In short, any problem that may affect the individual's job placement becomes the concern of the employment specialist.

Scheduling follow-along contacts. Although a number of writers have addressed the types of activities that constitute follow-along services, little direction has been given as to the frequency and intensity of contacts. The determination of "sufficient" or "necessary" contacts to maintain employment has generally been left to the discretion of the employment specialist, provided that legal minimum levels are met.

Rusch (1986) describes two types of schedules, the adjusted schedule and the fixed schedule. The adjusted schedule varies with consumer's success in meeting the employer's expectations and in ratings of progress. If an employer cannot tolerate this arrangement, then a predetermined, or fixed, schedule of follow-along contacts is negotiated.

With consumers of the RRTC TBI Project, we are exploring more planned and systematic methods of scheduling follow-along contacts a the job site that meet individual needs for flexibility, crisis intervention, and frequency of contacts. Three levels of follow-along intensity have been identified. These are presented along with decision rules in Table 1.

Table 1

Levels of Job Site Follow-along Contacts

Level III	A minimum of two contacts per week with the client and employer. This schedule is followed immediately after job stabilization and during crisis periods.
Level II	A minimum of one contact per week. This is intended as an interim schedule during the fading process or following crisis resolution.
Level I	The legal and clinical minimum of one contact every two weeks.

Factors for determining an appropriate level of follow-along:

(a) The point from job stabilization
(b) Any difficulties experienced during the job site training phase
(c) Changes in medication or health status
(d) Changes in supervision or job duties
(e) Particular behavioral characteristics of the individual
(f) periods of personal crisis, depression, stress, or alcohol or substance abuse that are likely to affect work performance
(g) The amount of intrusiveness that can be tolerated by the consumer and the employer.

The follow-along scheduling form currently utilized is presented in Figure 2. The employment specialist plans dates to make job site contacts, and then submits a copy of the form to the program coordinator for monitoring implementation. The purpose of this procedure is not to scrutinize the activities of the employment specialist, but to insure that other daily activities and emergencies do not interfere with this vital program component. The employment specialist also may schedule off-site contacts on particular days, determined in part by data collection schedules and the needs of the individual.

We have yet to determine if this system of follow along planning is more effective in enhancing job retention than the more traditional discretionary methods of making job site follow-along contacts. However, we do feel that it affords a greater

Figure 2

Consumer	Staff Person	Week of	Sun	Mon	Tue	Wed	Thu	Fri	Sat
Consumer #1 [1 contact per 2 weeks]		10/16							
		10/23							
Consumer #2 [1 contact per week]		10/16							
		10/23							
Consumer #3 [1 contact per 2 weeks]		10/16							
		10/23							
Consumer #4 [1 contact per week]		10/16							
		10/23							
Consumer #5 [2 contacts per week]		10/16							
		10/23							
Consumer #6 [2 contacts per week]		10/16							
		10/23							
Consumer #7 [1 contact per week]		10/16							
		10/23							
Consumer #8 [1 contact per 2 weeks]		10/16							
		10/23							

Code: E = Employer or co-worker contact
C = Consumer only contact
F = Family contact
O = Other contact

likelihood of detecting problem situations before they become job-threatening, and therefore enhances job retention potential.

The support group. The support group for workers with disabilities (as described for workers with psychosocial disabilities by Isbister and Donaldson, 1987) can be a valuable medium for monitoring on-going adjustment to employment. Members of the support group meet voluntarily to discuss problems or stresses associated with work and provide mutual emotional support. Through these exchanges, supported employment staff are also able to monitor the emotional stability of the group members and identify potential problem areas at the job site or home.

Our own support group for workers with TBI was organized in 1987 as a joint effort of the RRTC's TBI supported employment demonstration project and the Medical College of Virginia's Department of Rehabilitation Medicine. Two groups are conducted simultaneously - - one for project participants and one for family members. All of the head-injured participants are either project consumers who have been placed into employment or those waiting for placement services.

Formal Strategies

Supervisor's Evaluations. Formal supervisor evaluations provide insight not only into the work performance of the head-injured employee, but also the expectations and priorities of the supervisor. For example, Shafer, Kregel, Banks, and Hill (1988) examined scores on the RRTC's Supervisor's Evaluation Form (see Figure 3) for initial and terminal evaluation for 125 workers with mental retardation. They found that employees who eventually were separated from their job tended to score lower than successful placements in the areas of attendance, punctuality, and timeliness of lunch and breaks. They conclude that employers may be willing to lower performance standards of speed and quality for a dependable, loyal worker. Although these findings have yet to be generalized to other disability groups, supervisor evaluation forms have utility for examining worker/supervisor relationships in both aggregated data and individual cases.

In the RRTC's data collection schedule, the Supervisor's Evaluation Form is completed by the employee's job site supervisor, ideally with the employment specialist and the employee present, at a minimum of one month, three months, and six months post-placement, and every six months thereafter. Employment specialists may request evaluations from the supervisor on a more frequent schedule if deemed necessary and feasible. Because the work performance evaluations often used in businesses and industries are often not sufficiently expansive or behavioral for supported employment purpose (Rusch, 1986) employers are requested to use the RRTC's Supervisor,s Evaluation Form in addition to any other employee evaluation forms or methods that they would normally use.

Job Update Form. The Job Update Form (Figure 4) is used to collect data related to changes in job elements, such as wages, work hours, and level of integration with customers or co-workers. This form is a shortened version of the RRTC's Job

Figure 3

Using the following scale, please check one number to the right of each question that best represents your opinion about this employee's present situation:

1	2	3	4	5
Extremely Dissatisfied	Somewhat Dissatisfied	Satisfied	Very Satisfied	Extremely Satisfied

How satisfied are you with this employee's . . .	1	2	3	4	5
1. timeliness of arrival and departure from work?					
2. attendance?					
3. timeliness of breaks and lunch?					
4. appearance?					
5. general performance as compared to other workers?					
6. communication skills?					
7. consistency in task performance?					
8. work speed?					
9. quality of work?					
10. overall proficiency at this time?					

Additional Comments:

Screening Form, which also provides an analysis of job parameters, requirements, and expected competencies.

The Job Update Form is completed at three and six months post-placement, and every six months thereafter.

Consumer Update Form. The Consumer Update Form (Figure 5) collects data related to the supported employee's level of independence. The areas of interest include (a) the employee's vocational rehabilitation case status, (b) residential situation, (c) mode of transportation to and from work, and (d) the types and amounts of government financial aid and entitlement. The form is completed on the same schedule as the Job Update Form. Because this information is also collected either prior to or at initial placement, changes in the employee's status as a direct result of employment

can be tracked over time. Thus, this form provides a significant amount of information necessary for consumer level benefit/cost analysis.

Consumer Self-evaluation. At the times that the job site supervisor completes a Supervisor's Evaluation Form, the TBI consumer also completes an identical form

Figure 4

1. Type of service/employment for this report (select one): ___
   1 = Work activity or sheltered employment
   2 = Entrepreneurial
   3 = Mobile work crew
   4 = Enclave
   5 = Supported job
   6 = Supported competitive employment
   7 = Time-limited (no on-going services anticipated)
   8 = Other (specify: _____)

2. Type of update: On-going ___ Final ___

3. Job title: _____

4. Current hourly wage (or last wage in this position): _____

5. Did a wage change occur since the last Job Screening or Job Update? ___

6. If yes, then complete this section:
   Hourly rate changed from $_____ to $_____ on _ _/_ _/_ _
   Hourly rate changed from $_____ to $_____ on _ _/_ _/_ _

7. Number of hours worked per week: ___ Months worked per year: ___

8. If less than 12 months per year, what months is the job not available?

9. Number of employees in this company at this location: _____
   Number without disabilities in immediate area (50' radius): _____
   Number of other employees with disabilities: _____
   In immediate area (50' radius): _____
   Number of other employees in this position: _____
   During the same hours: _____

10. Level of social contact (circle one):

    0 - Employment in a segregated setting in which the majority of interactions with persons without disabilities are with caregivers or service providers. Example: Adult Activity Center.

    1 - Employment in an integrated environment on a shift or position which is isolated. Contact with coworkers without disabilities or supervisors is minimal. Example: Night Janitor.

    2 - Employment in an integrated environment on a shift or position which is relatively isolated. Contact with coworkers without disabilities is available at lunch or break. Example: Pot Scrubber.

    3 - Employment in an integrated environment in a position requiring a moderate level of task dependency and coworker interaction. Example: Dishwasher required to keep plate supply stacked for cooks.

    4 - Employment in an integrated environment in a position requiring a high degree of task dependency and coworker or customer interaction. Example: Busperson/Porter.

assessing his or her own work performance. This procedure has two related functions. First, it provides the employment specialist insight to the consumer's perceptions of strengths and weaknesses. Second, it may reveal areas of dissonance between the

consumer's perceptions and the supervisor's, and thus provide the employment specialist with general areas in which to concentrate intervention.

Figure 5

1. Current DRS case status for this consumer (enter DRS code): _____
   If never served by DRS, enter none in the space provided.

2. Current residential situation (select one only): ____
   1 = Independent
   2 = Supported living arrangement
   3 = Sponsored placement (foster care)
   4 = Domiciliary care apartment (home for adults)
   5 = Supervised apartment
   6 = Parents
   7 = Other relatives
   8 = Group home/halfway house
   9 = Other (specify: _____)

3. Current primary mode of transportation to work (select one only): _____
   1 = Independent use of public transportation
   2 = Walks/rides bike or moped
   3 = Dependent use of public transportation (needed bus training)
   4 = Arranged car pool
   5 = Parent/friend drives
   6 = Handicapped transportation
   7 = Taxi
   8 = Drives own vehicle
   9 = Other (specify: _____)

4. Financial aid received by consumer at present or as of last day of work. Circle yes or no for each selection. If yes, write the amount received to the left of the selection.

   _____ Yes / No None
   _____ Yes / No SSI
   _____ Yes / No SSDI
   _____ Yes / No Medicaid
   _____ Yes / No Medicare
   _____ Yes / No Food Stamps
   _____ Yes / No Public Assistance (Welfare)
   _____ Yes / No Other (specify: _____)

5. Total income from all government financial aid during the past month: _____

Case Studies in Job Follow Along and Retention

Consumer Characteristics

Dave sustained a Grade III head injury in a motorcycle accident at the age of 15, and was in a coma for ten weeks. Residual symptoms of his injury include mild dysarthria, impaired right and left hand fine motor dexterity, right side spasticity, a stiff right knee, slurred speech, memory deficits, and a reduced tolerance for frustration.

Following graduation from high school, Dave worked in a number of jobs, including porter, dishwasher, cashier, file clerk, and production worker in a sheltered workshop. According to Dave, he had difficulties relating to co-workers and supervisors in nearly every job that he held. He had also been arrested in 1984 for assault,

trespassing, and disorderly conduct, and was sentenced to 13 months probation. Dave was unemployed at the time of his referral to the RRTC supported employment project, receiving SSI benefits totaling $340 per month, food stamps, and government subsidized housing. He self-reported that he had three or four drinks about four times a week.

Job Placement and Training

Dave and his employment specialist focused on three major concerns during the job development phase: Dave's occupational interests, neuropsychological and other assessment data, and his physical and behavioral limitations and problems. They agreed that Dave needed a tranquil, low pressure work environment with few co-workers in the immediate vicinity. A part-time position was located as a warehouse worker, starting pay $3.90 per hour with benefits.

Dave's job duties involved locating stock within the warehouse, carting it from its storage area to a conveyor belt, and recording a six-digit stock number on both an order sheet and on a computer terminal. These duties required approximately two weeks of training to reach 100% proficiency. In addition, the employment specialist made several inexpensive adaptations in the work environment in response to persistent problems. For example, Dave repeatedly misplaced the pencil for recording stock numbers. The employment specialist purchased a pen with a velcro fastener and attached this to Dave's clipboard. Dave also attempted to direct other new employees who were unfamiliar with procedures, which often resulted in outbursts of anger and frustration from Dave. The employment specialist made a permanent prompt, a laminated poster with detailed instructions, to which all new employees could refer, thus eliminating the need for them to ask directions from Dave.

Follow Along Activities

Although Dave reached job stabilization in a relatively short period, the follow along phase proved vital in keeping Dave on the job due to a number of problems and issues that later surfaced. The most serious problem was inappropriate responses to co-workers, such as yelling, threats, and occasionally, physical aggression. A self-monitoring system developed by the employment specialist was abandoned after one week because this in itself caused stress and anxiety for Dave. The employment

specialist used Dave's co-workers as co-therapists, instructing them in ways of reducing his frustration and anxiety levels.

Dave exhibited other social problems that needed attention. For example, he went to his supervisor continually with work related and personal problems, his own and those of his co-workers. The employment specialist addressed this problem through counseling and role-playing exercises with Dave. In addition, Dave would become careless with his duties, resulting in inefficient work and occasional injuries to himself. The employment specialist developed a weekly feedback sheet with which the supervisor was able to report to Dave and the employment specialist how he was performing his duties and responding to co-workers.

Off-site interventions were necessary with Dave as well, primarily in the areas of budgeting money, substance abuse, grooming and hygiene, and sexual dysfunction. The employment specialist addressed these problems through counseling.

Dave held his job for 14 months. His problems with injuries and aggression eventually resulted in his termination. In those 14 months he earned $7,155 and received 293.5 hours of intervention time. He was returned to the RRTC's referral pool for consideration for a second placement.

Case Study #2: Matthew

Consumer Characteristics

Matthew was injured in an automobile accident at the age of 30 and was in coma for approximately two months. He had previously earned a GED and was employed at the time of his accident as a school maintenance assistant. As a result of the injury, he exhibited problems in the areas of language, sight, and memory. Matthew also has static nerve palsy in his right leg, resulting in difficulties walking and climbing stairs. He wears a leg brace and uses a cane and wheelchair. He was 33 when referred to the RRTC, and had not worked since his injury.

Job Placement and Training

Because of Matthew's physical limitations and prior clerical experience and interest, job development efforts focused on office related occupations. A full-time

position was located as a microfilm clerk in an office building, starting pay $4.50 per hour with full benefits.

Matthew's primary job duties involved processing incoming checks and receipts by a) stamping the receipts accounting errors, b) microfilming checks and receipts, and c) reboxing the work. Training in these skills was completed three weeks from the hire date, with Matthew being able to complete 30 to 40 checks per hour with accuracy rates of 98 to 100 percent.

Follow Along Services

Early in the follow along process, Matthew's supervisor requested assistance in improving his work speed. The employment specialist therefore initiated retraining activities to meet this need. He designated different intervals during Matthew's work hours during which Matthew would race the clock and graph his own performance levels. This procedure proved to be very reinforcing to Matthew. His speed improved without a decrease in work quality. Typed task analyses of Matthew's job duties were also left at the job site because he sometimes would forget steps of particular jobs.

Matthew has had recurrent problems with excessive drinking, resulting in a high absentee rate. On one occasion, he fell off his porch while drinking and bruised his ribs. He went to work the next day but had to be sent home due to his pain. When discussions with Matthew about his drinking proved futile, the employment specialist and Matthew developed a written contract which called for Matthew to seek counseling in order to remain a supported employment client. In addition, Matthew's sister became involved in monitoring his alcohol intake and notifying the employment specialist whenever Matthew drank excessively.

Matthew has a goal of living independently. The employment specialist has worked with Matthew and the family to better budget his money and plan for that eventuality. Matthew still has some unrealistic expectations about his financial survival which the employment specialist continues to address.

After one year, Matthew received a merit increase to $5.00 per hour. At this writing, Matthew has remained in his position for 21 months and earned $17,400. His SSI cash benefits have been halted, but he continues to receive Medicare health

coverage. He has also received 688.5 hours of intervention time from his employment specialist.

Discussion

Several key points about the case studies are warranted:

1. The two cases were selected to emphasize that the provision of systematic follow along procedures have resulted in long-term job retention for these individuals. Their earnings have decreased their reliance not only on the social service system, but on their families and friends as well.
2. Even though Dave was eventually terminated from his position, he was able to accumulate 14 months of continuous work experience in one position, $7,155 in earnings, and the self-confidence to pursue further employment. His supported employment experience, particularly in comparison with other persons with severe head trauma, can be characterized as nothing short of successful.
3. Although many clients of supported competitive employment return sufficient tax revenue form their earnings to offset the cost of supported employment, these two individuals have not and perhaps never will. Yet both have become contributors to the economic system, rather than just consumers. Their contributions, however small in comparison to the cost of services, are significant in comparison to the economic and emotional impact of sporadic or no employment and custodial care.

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